



Supplemental Phase II Environmental Site Assessment 8079 Eighth Line, Halton Hills, ON

Project No. 0082-001.02
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Prepared for:

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Executive Summary

Gilbach Real Estate Development (Gilbach) retained BlueFrog Environmental Consulting Inc. (BlueFrog), to complete a Supplemental Phase II Environmental Site Assessment (ESA) of the subject property at 8079 Eighth Line, Halton Hills, ON (hereinafter referred to as the Site).

The objective of the investigation was to further assess soil and groundwater quality to address data gaps identified during a Phase Two Environmental Site Assessment (ESA) completed by DS Consultants Ltd. (DS), report dated June 3, 2020.

The Site, approximately 19.0 hectares (47 acres), was developed in the mid-1940s. Previously the Site was agricultural and rural residential (i.e., barn, sheds, and a house occupied the Site). The Site is approximately 200 m northeast of the intersection of Steeles Avenue and Eighth Line North in a mixed residential, commercial, and agricultural area in the Town of Halton Hills, Ontario. The Site was vacant during the investigation and there were no buildings or structures present. The on-site structures had been reportedly demolished in 2017.

Based on the BlueFrog review of the Phase One ESA and Phase Two ESA reports by DS, two areas of potential environmental concern (APECs) were identified by DS, which were related to the use of pesticides at the northern part of the Site and the importation of fill of unknown quality in the vicinity of former site buildings (i.e., sheds, barn, and house) near the centre of the Site (APEC-2).

The following data gaps were identified by BlueFrog:

- 1) Groundwater was not assessed where soil impacts were identified (APEC-1 and APEC-2)
- 2) Lateral delineation of petroleum hydrocarbon (PHC) and polycyclic aromatic hydrocarbon (PAH) impacted soil was not completed in the vicinity of TP20-10, TP20-19, TP20-21, and TP20-22 in the centre part of the Site where the former on-site structures had been positioned (APEC-2); and,
- 3) A third APEC (APEC-3) should have been identified related to the storage of gasoline and associated products 1) in a fixed tank because the former on-site house was heated by fuel oil-fired furnace in the past), and 2) associated with potential maintenance of farm equipment.

The supplemental Phase II ESA investigation was completed, and the activities and findings are summarized in the table below.

Item	Comments
Field work dates	August 11 to 21, 2020
Total number of assessment locations	7
Assessment locations completed as boreholes	BH1 to BH4
Assessment locations completed as monitoring wells	MW101 and MW102
Maximum assessment depth	7.6 metres below ground surface (m bgs)
Stratigraphy	Topsoil or asphalt underlain by silt and/or clay to the maximum depth of the assessment of 7.6 m bgs.
Evidence of free product	None
Soil vapour concentration (parts per million volume, ppmv)	Combustible soil vapours (CV): considered not detected (<5 ppmv) to 220 ppmv. Organic soil vapours (OV): considered not detected (<1 ppmv) to 1 ppmv.

Item	Comments
Depth to groundwater	4.31 m to 5.02 m bgs
Inferred groundwater flow direction	The inferred Site-specific groundwater flow direction was easterly.
Subsurface vapour concentration	CV: not detected (<5 ppmv) to 580 ppmv. OV: not detected (<1 ppmv) to 1 ppmv
Site Condition Standard	MECP full depth generic site condition standards (SCSs) in a potable groundwater condition (Table 2) for industrial/commercial/community property use, medium to fine textured soils
Soil Exceedances	Petroleum hydrocarbon (PHC) and polycyclic aromatic hydrocarbon (PAHs) parameters exceeded the applicable MECP Table 2 SCSs from boreholes BH2-0.61 and BH3-0.61.
Groundwater Exceedances	None

Discussion

Concentrations of the chemicals analyzed in soil and groundwater samples collected from each borehole and monitoring well sampled at the Site to address each of the APECs met the applicable Ministry of the Environment, Conservation and Parks Table 2 Site Condition Standards, except for two shallow soil samples collected from BH2 and BH3 (to address APEC-2) at a depth 0.61 m bgs for one or all of PHC fraction F4 (gravimetric), benzo(a)pyrene, and dibenzo(a,h)anthracene.

In summary, no soil and groundwater exceedances were identified in any of the samples collected to address APEC-1 and APEC-3). However, lateral delineation of the exceedances associated with APEC-2 has not been achieved to the north. Considering the concentrations of the PHC and PAH impacts the topography and expected location of fill, and other nearby sample results, the extent of the impacts are inferred not to be much further, and no further investigation work is warranted at this time.

This Executive Summary is not intended to be a stand-alone document, but a summary of findings as described in the accompanying Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

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1.0 Introduction and Objectives

Gilbach Real Estate Development (Gilbach) retained BlueFrog Environmental Consulting Inc. (BlueFrog), to complete a Supplemental Phase II Environmental Site Assessment (ESA) of the subject property at 8079 Eighth Line, Halton Hills, ON (hereinafter referred to as the Site).

The objective of the supplemental ESA was to further assess soil and groundwater quality to address data gaps identified during a Phase Two ESA completed by DS Consultants Ltd. (DS), report dated June 3, 2020.

The subject work was performed in accordance with the agreement between BlueFrog Environmental Consulting Inc. and Gilbach, dated August 3, 2020. This report has been prepared based on fieldwork and/or review of information conducted by BlueFrog, for the sole benefit and use by Gilbach. In performing the work, BlueFrog relied in good faith on information provided by others and assumed that the information provided is both complete and accurate. Our work was performed to current industry practice for similar environmental work within the same regulatory jurisdiction. The findings presented herein should be considered in the context of the scope of work; further, the findings are considered valid only at the time the report was produced. The information presented herein shall not be construed as legal advice.

The conclusions, recommendations, and/or opinions presented in this report are based upon engineering and/or geoscience judgement and experience within the context of the client objectives and the applicable guidelines, regulations, and legislation existing at the time the report was produced.

1.1 Site Description

The Site is approximately 19.0-hectares (47 acres) and was developed in the mid-1940s. The Site was previously agricultural and rural residential (i.e., occupied by a barn, sheds, and a house). The Site is approximately 200 m northeast of the intersection of Steeles Avenue and Eighth Line North in a mixed residential, commercial, and agricultural area in the Town of Halton Hills, Ontario. The Site was vacant during the assessment and no on-site structures were observed. The former onsite structures had been reportedly demolished in 2017.

There are two watercourses at the Site, the East Sixteen Mile Creek and a tributary. The land adjacent to the East Sixteen Mile Creek is designated in the Halton Region Official Plan as a natural heritage feature.

The area was historically developed in the 1940s and is primarily residential and agricultural.

Based on our review of the Phase One ESA and Phase Two ESA reports by DS, two areas of potential environmental concern (APECs) were identified related to the uses of pesticides in the northern part of the Site and importation of fill of unknown quality near the former on-site structures near the centre of the Site.

The following data gaps and environmental concerns were identified:

1. Groundwater previously was not assessed.
2. Lateral delineation of the petroleum hydrocarbon (PHC) and polycyclic aromatic hydrocarbon (PAH) impacted soil was not completed near TP20-10, TP20-19, TP20-21, and TP20-22 in the centre part of the Site where the former on-site structures were located (i.e., sheds, barn, and house); and,
3. A third APEC, related to 1) the storage of gasoline and associated petroleum products in a fixed tank (because the former on-site house was heated by fuel oil), and 2) potential maintenance of farm equipment.

The Site location is presented as **Figure 1**. A plan with the Site features is presented on **Figure 2**.

2.0 Scope of Work

The Supplemental Phase II ESA Investigation involved the following main activities:

- Prepare a Site and task specific health and safety plan.
- Advance boreholes and install monitoring wells in the areas shown on **Figure 2** to address each of the identified APECs, also shown on Figure 2.
- Collect soil samples from the boreholes for laboratory analysis of one or more of:
 - Petroleum hydrocarbons (PHC) Fractions F1 to F4, benzene, toluene, ethylbenzene, xylenes (BTEX), and polycyclic aromatic hydrocarbons (PAHs).
- Collect a composite sample of soil from the drums and submit the sample to Bureau Veritas for Toxicity Characteristic Leaching Procedure (TCLP) analysis to facilitate disposal of the soil at an MECP approved landfill.
- Survey (vertically and horizontally) new and existing monitoring wells to a common benchmark and datum.
- Monitor the newly installed monitoring wells for water level, subsurface vapour concentration, and presence or absence of free (free phase or liquid) product.
- Collect groundwater samples from the newly installed monitoring wells for laboratory analysis of one or more of:
 - PHC F1 to F4, BTEX, and PAHs.
- Prepare a factual report documenting the field activities and results.

3.0 Methodology

The Supplemental Phase II ESA was completed in general accordance with the Ontario Ministry of the Environment, Conservation and Parks (MECP) Guidance for Completing Phase Two Environmental Site Assessments under Ontario Regulation 153/04 (as amended, July 1, 2011), the MECP *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act, R.S.O 1990, Ontario Regulation 153/04* (as amended), and standard industry practice. The work was completed for due diligence purposes rather than to facilitate filing of a MECP Record of Site Condition.

Soil and groundwater samples were submitted to the Bureau Veritas in Mississauga, Ontario. The Bureau Veritas Mississauga laboratory has been assessed and recognized as an accredited testing laboratory by the Standards Council of Canada (SCC) which found that the laboratory conforms with the requirements of ISO/IEC 17025:2017 and the conditions for accreditation established by SCC for the specific tests or types of tests listed in the scope of accreditation approved by the SCC.

Analytical methods used by the laboratory are referenced in the Certificates of Analysis presented in **Appendix C**. Analytical procedures were conducted in accordance with the MECP *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act* (as amended).

A summary of the work conducted is as follows.

Item	Comments
Field work dates	Drilling and monitoring well installation: 2020-08-11 and 2020-08-17 Surveying: 2020-08-21 Monitoring well development: 2020-08-21 Groundwater monitoring and sampling: 2020-08-21
Drilling contractor; drill rig	Profile Drilling; track-mounted direct push drill rig (Powerprobe 9700 VTR PRO/2); truck-mounted drill rig (Mobile B-37X)
Maximum assessment depth	7.6 m bgs
Assessment locations completed as boreholes	BH1 to BH4
Assessment locations completed as monitoring wells	MW101 and MW102

The field methodology is further discussed in the following subsections. The assessment locations are presented on **Figure 2**. Borehole logs detailing soil observations and monitoring well installation are presented in **Appendix A**.

3.1 Drilling

Public and private utility locates were completed prior to the initiation of the drilling program. BlueFrog staff supervised the drilling of the boreholes.

During borehole advancement boreholes were logged for textural classification and visual observations.

Drill cuttings (soil) were collected in steel drums for disposal at a MECP licensed waste receiver.

3.2 Monitoring Well Installation, Development, and Monitoring

Installation

A monitoring well, consisting of a 51-mm diameter polyvinyl chloride (PVC) 10 slot screen, measuring 3.0 m in length, and an un-slotted riser was installed in selected boreholes. A sand filter pack was placed in the annulus between the slotted PVC pipe and borehole walls to a maximum of 0.30 m above the well screen. Hydrated bentonite chips were placed in the annulus between the solid PVC pipe and borehole walls on top of the sand pack to approximately 0.3 m below ground surface. The monitoring wells were completed with a J-plug and monument metal stickup well casing set in concrete grout to protect the well from damage. Copies of the monitoring well installation records can be provided upon request.

Development

Following installation, the wells were developed by purging a minimum of three casing volumes or until the well was considered dry. The purpose of developing the monitoring well was to remove soils or other materials which may have entered the monitoring well during construction to ensure water samples collected at a future date would be representative of formation water. The wells were purged using dedicated tubing and the purge water was placed in a drum at the Site for temporary storage pending removal to an MECP approved waste receiving facility.

Monitoring

The wells were monitored for subsurface vapour concentrations, water levels, and the presence or absence of free product. The wells were generally monitored in order of least impacted to most impacted (based on soil field screening and previous soil analytical results, where available).

Immediately after removing the wells caps, the maximum combustible vapour (CV) and organic vapour (OV) subsurface concentrations in the monitoring wells were measured using an RKI EAGLE 2 gas monitor operated in methane elimination mode. This was done by inserting the collection tube of the RKI EAGLE 2 into the top portion of the riser pipes and recording the peak instrument readings.

The depth to the water table and presence or absence of light and dense non-aqueous phase liquids in the monitoring wells were determined with a Solinst interface meter that was cleaned with a solution of phosphate-free detergent and water, then rinsed with distilled water, between monitoring wells.

3.3 Soil Sampling

During the drilling investigation continuous soil samples were collected within the acetate liner of the direct push sampling probe and/or using a 51-mm outside diameter steel split spoon sampling tool at regular intervals. Soil samples were collected by BlueFrog from material within the liner at regular intervals.

The samples were collected using a stainless steel trowel and nitrile gloves and placed in laboratory supplied jars. The sampling devices were cleaned with a solution of phosphate-free detergent and water, then rinsed with distilled water, between samples.

Each soil sample was immediately split and one portion of the sample was sealed in a clean plastic bag for screening, the remainder of the sample was promptly placed in containers supplied by the laboratory and stored in coolers with ice for possible analysis.

Soil screening included:

- Determining textural description;
- Visual evidence of impact (e.g., staining, or free product); and
- Measurement of combustible soil vapours (CV) and organic soil vapours (OV) using an RKI EAGLE 2 gas monitor.

Soil samples submitted for laboratory analyses were selected based on sample location relative to the water table, visual observations, and/or field screening results. Samples were placed in bottles supplied by the laboratory:

- For analyses of BTEX and PHC fraction F1, in a septum topped 40-mL clear glass vials pre-charged with 10 mL of methanol; approximately 5 g of soil was collected using a dedicated sampling syringe.
- For analyses of the remaining parameters, in 60-mL, 120-mL, or 250-mL glass jars with Teflon lined lids, as specified by the laboratory.

3.4 Groundwater Sampling

Groundwater samples were collected from the monitoring wells using a low-flow purging methodology using a variable-flow peristaltic pump to remove groundwater from the mid-point of the monitoring well screened zone. The pump was connected to a flow-through cell, equipped with a Horiba U-22 multimeter, using polyethylene and silicone tubing dedicated to each monitoring well. The groundwater sample was collected using dedicated tubing when the measured pH, temperature, electrical conductivity, dissolved oxygen (DO), reduction oxidation potential (REDOX), and turbidity values generally stabilized (as noted below), over three consecutive measurements.

Parameter	Comments
Temperature	± 3%
pH	± 0.1 pH Units
Electrical Conductivity	± 3%
DO	± 10%
REDOX	± 10 mV
Turbidity	± 10%

Purged groundwater was placed in sealed drums at the Site for storage until it could be transported to a MECP licensed waste receiving facility.

Samples were collected into sample bottles supplied by the laboratory:

- For analyses of BTEX, and PHC fraction F1, in septum topped 40-mL clear glass vials (with zero headspace), pre-charged with sodium bisulphite preservative; and
- For analyses of PHC fractions F2 to F4 and PAHs were each collected in 100-mL amber glass bottles, pre-charged with sodium bisulphite preservative.

The groundwater samples were placed in coolers on ice immediately after they were collected.

3.5 Surveying

The monitoring wells were vertically and horizontally surveyed and tied into a common benchmark and datum using a self-leveling laser unit.

3.6 Quality Assurance and Quality Control (QA/QC)

A QA/QC program was implemented to reduce and quantify potential issues introduced during sample collection, handling, shipping, and analysis. The quality assurance and control program included, but was not limited to, using trained field personnel, dedicated sampling equipment, employing sample-specific identification and labelling procedures, and using chain of custody records, and duplicate samples.

4.0 Selected Site Condition Standards

Based on the details provided below, the site condition standards (SCSs) selected were:

- Table 2: Full depth generic site condition standards in a potable groundwater condition (MECP 2011) for industrial/commercial/community property use and medium to fine textured soils; and,

Item	Comments
Groundwater condition	Potable: There are several drinking water wells within 250 m of the Site. Therefore, 2011 MECP Table 2 SCS were selected.
Environmentally sensitive areas	There are two watercourses at the Site, the East Sixteen Mile Creek, and a tributary. The current assessment locations are outside the 30-m buffer zone and are not an area of natural significance. pH values for surface soil samples (< 1.5 m bgs) are not less than 5 or greater than 9 from DS assessment. pH values for subsurface soil samples (> 1.5 m bgs) are not less than 5 or greater than 11 from DS assessment.
Shallow soil property	As indicated by the available borehole logs, less than one third of the supplemental Phase II ESA property consists of soil equal to or less than 2 metres in depth beneath the soil surface, excluding any non-soil surface treatment.
Proximity to a waterbody	Two waterbodies (East Sixteen Mile Creek and a tributary) transect the Site. However, the assessment locations are outside the 30-m buffer zone of the waterbodies.
Current and proposed land use	Current: Agricultural and residential. Proposed: Commercial and Industrial.
Soil texture	Fine textured soils, as determined by the borehole logs; more than two-thirds of the soil at the Site, measured by volume, consists of 50 percent or more of particles that are smaller than 75 μm in diameter.
Full depth or stratified	The full depth 2011 MECP Table 2 SCS were selected.

5.0 Field Observations

5.1 Soil

Soil field observations are presented on the borehole logs in **Appendix A** and summarized below.

Item	Comments
Stratigraphy	Topsoil or asphalt underlain by silt and/or clay to the maximum depth of the assessment of 7.6 m bgs.
Soil vapour concentrations	CV: not detected to 220 ppmv OV: not detected to 1 ppmv
Visual evidence of impact (e.g., staining, or free product)	None observed.

5.2 Groundwater

Groundwater field observations are detailed in **Table 1** and summarized below.

The groundwater elevations have been contoured and presented on **Figure 3**. The groundwater table fluctuates seasonally and groundwater depths are based on short term monitoring.

Item	Comments
Groundwater levels	4.31 m to 5.02 m bgs.
Inferred groundwater direction	The Site-specific groundwater flow direction was inferred to be toward the east and East Sixteen Mile Creek. Based on the Site topography, the regional groundwater flow direction is presumed to be toward Lake Ontario.
Subsurface vapour concentrations measured in monitoring wells	CV: not detected to 580 ppmv OV: not detected to 1 ppmv
Free product	Not detected.

6.0 Analytical Results

The soil and groundwater analytical results are presented and compared to the applicable MECP Table 2 SCS in **Tables 2** and **3**, respectively. The laboratory Certificates of Analysis are presented in **Appendix C**.

6.1 Soil

The concentration of each parameter of concern in soil analyzed met the applicable MECP Table 2 SCS, except the following:

- PHC fraction F4 (gravimetric), benzo(a)pyrene, and dibenzo(a,h)anthracene in a sample from BH2 at 0.61 m bgs.
- Benzo(a)pyrene in a sample from BH3 at 0.61 m bgs.

The soil sample submitted for leachate analyses met the referenced Schedule 4 criteria and, therefore is classified as non-hazardous (solid) waste under Ontario Regulation 347 (as amended).

6.2 Groundwater

The concentration of each parameter of concern in groundwater analyzed met the applicable 2011 MECP Table 2 SCS.

6.3 Quality Assurance and Quality Control (QA/QC)

The results of the laboratory quality control analyses are presented in the Certificates of Analysis in **Appendix B**. The analyses included extraction surrogate recovery, method blanks, matrix duplicates, and matrix spikes and were considered acceptable with respect to conventional QA/QC standards.

As indicated, no laboratory QA/QC issues were identified.

7.0 Summary of Findings

During the Supplemental Phase II ESA, three deep and four shallow boreholes were advanced. Two monitoring wells were installed in two of the deep boreholes. Soil and groundwater samples were collected and submitted for laboratory analysis of one or more of PHC fractions F1 to F4, BTEX, PAHs, and leachate TCLP analyses.

The results of the assessment are summarized as follows:

- The stratigraphic profile observed with increasing depth in the boreholes generally consisted of topsoil or asphalt underlain by silt and/or clay to the maximum depth of the assessment of 7.6 m bgs.
- Groundwater depth ranged from 4.31 m bgs to 5.02 m bgs. The inferred principal direction of groundwater flow beneath the Site was to the east.
- Free product was not observed or detected during monitoring of the wells.
- The 2011 MECP Table 2 full depth generic SCS for a potable groundwater condition, for industrial/commercial/community property use, and medium and fine textured soils were selected for comparison to the soil and groundwater analytical results.
- All of the soil analytical results met the applicable Table 2 SCSs, except for the following:
 - PHC fraction F4 (gravimetric), benzo(a)pyrene, and dibenzo(a,h)anthracene in a sample from BH2 at 0.61 m bgs.
 - Benzo(a)pyrene in a sample from BH3 at 0.61 m bgs.
- All of the groundwater analytical results met the applicable Table 2 SCSs.

8.0 Discussion

Concentrations of the chemicals analyzed in soil and groundwater samples collected from each borehole and monitoring well sampled at the Site to address each of the APECs met the applicable Ministry of the Environment, Conservation and Parks Table 2 Site Condition Standards, except for two shallow soil samples collected from BH2 and BH3 (to address APEC-2) at a depth 0.61 m bgs for one or all of PHC fraction F4 (gravimetric), benzo(a)pyrene, and dibenzo(a,h)anthracene.

In summary, no soil and groundwater exceedances were identified in any of the samples collected to address APEC-1 and APEC-3). However, lateral delineation of the exceedances associated with APEC-2 has not been achieved to the north. Considering the concentrations of the PHC and PAH impacts the topography and expected location of fill, and other nearby sample results, the extent of the impacts are inferred not to be much further, and no further investigation work is warranted at this time.

9.0 Closure

We trust that this information meets your present needs. Statement of qualifications for the undersigned are available on request. Please do not hesitate to contact us if you have any questions or comments.

Sincerely,

BlueFrog Environmental Consulting Inc.

Report prepared by:



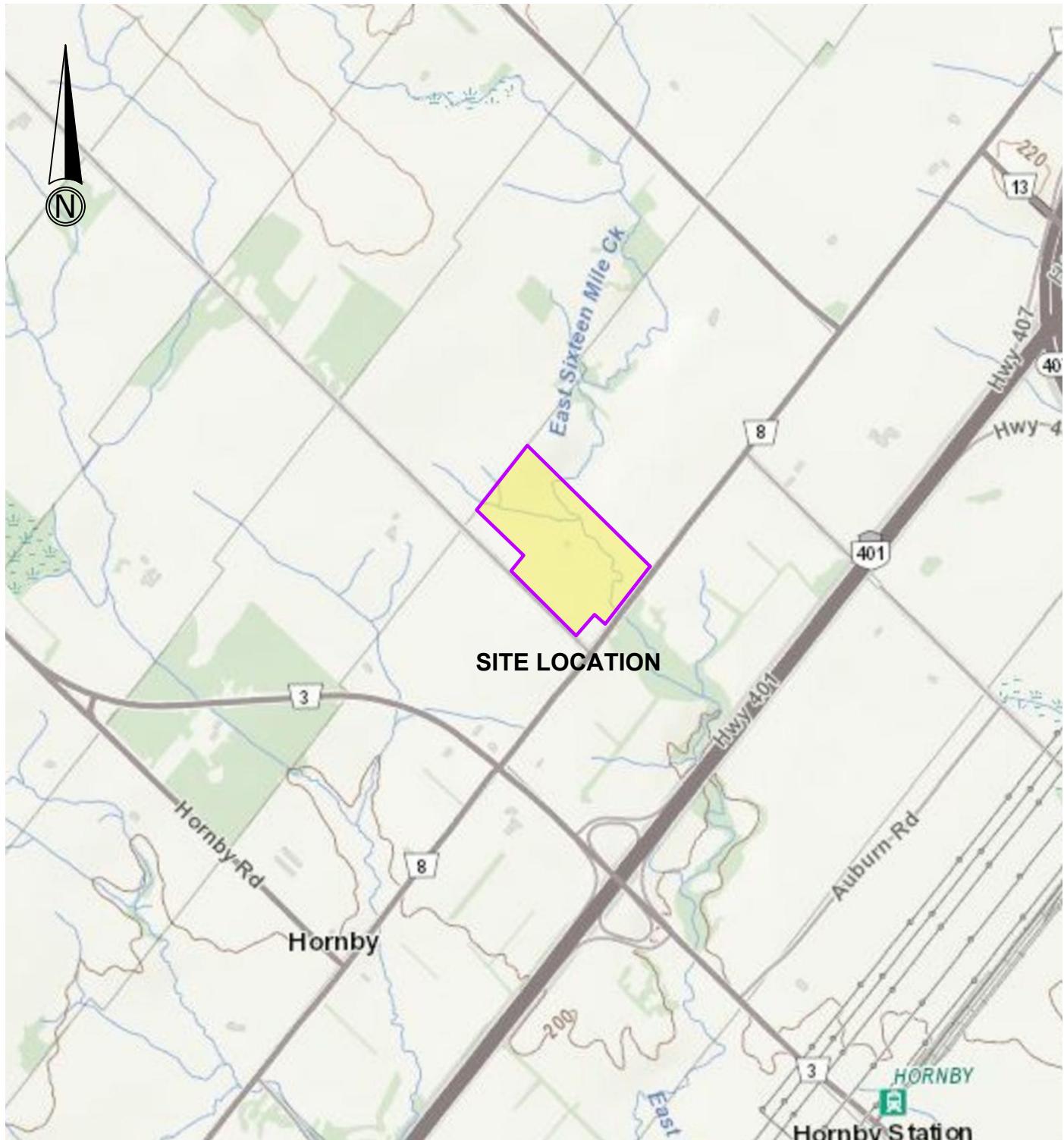
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FIGURES



0 250 500 1000m
Scale 1 : 20 000

SITE LOCATION MAP

8079 EIGHTH LINE NORTH,
HALTON HILLS, ONTARIO

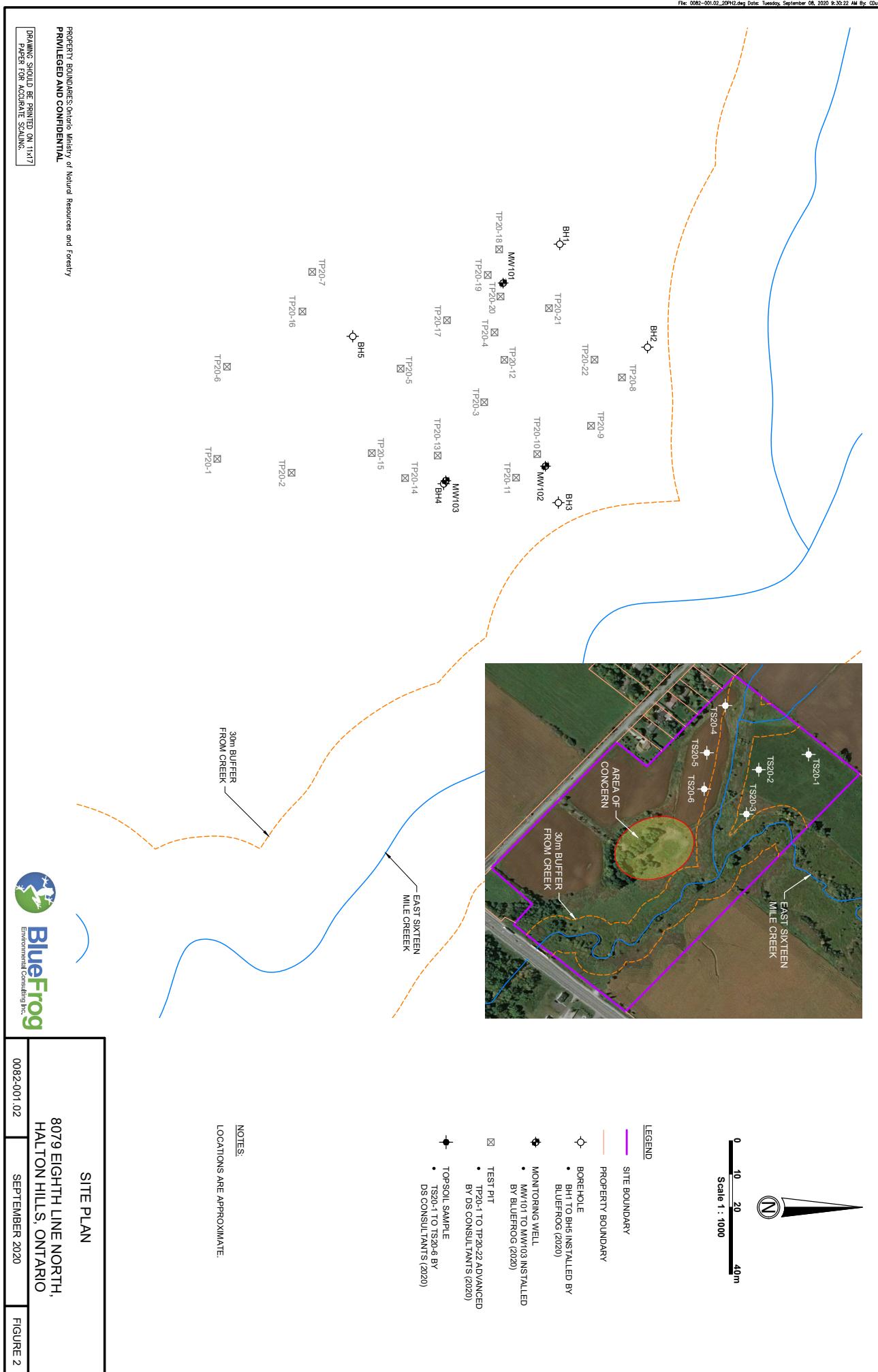


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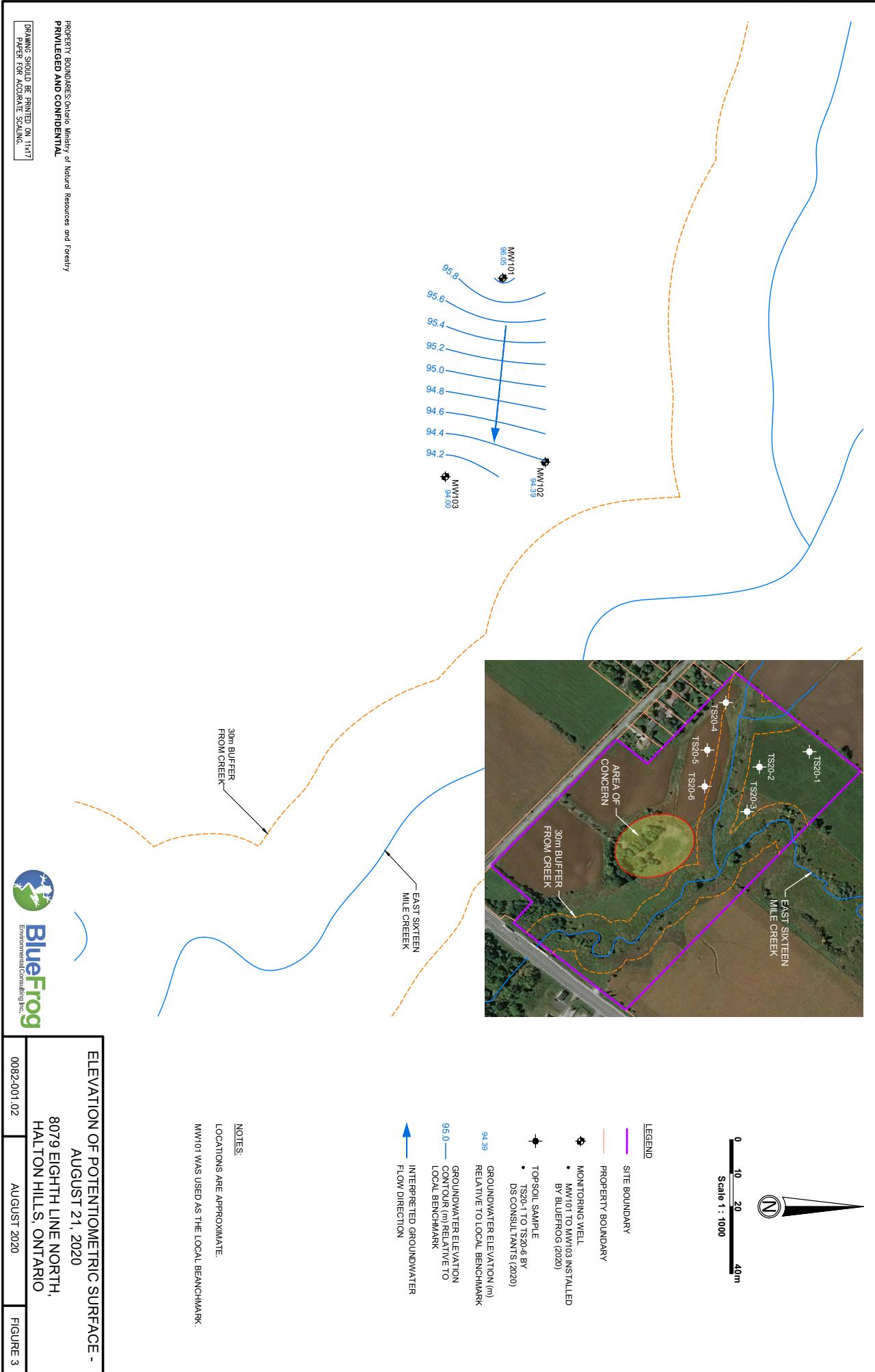
AUGUST 2020

FIGURE 1



PROPERTY BOUNDARIES: Ontario Ministry of Natural Resources and Forestry
PRIVILEGED AND CONFIDENTIAL

DRAWING SHOULD BE PRINTED ON 11x17 PAPER FOR ACCURATE SCALING



TABLES

Table 1: Groundwater Monitoring Well Details and Results

ASSESSMENT LOCATION	TOP OF PIPE ELEVATION ¹ (m)	GROUND SURFACE ELEVATION (m)	GPS COORDINATES	SCREEN INTERVAL (mbgs)	DATE (yyyy/mm/dd)	SUBSURFACE VAPOUR CONCENTRATIONS ² (CV)	SUBSURFACE VAPOUR CONCENTRATIONS ² (OV)	FREE PRODUCT THICKNESSES (mm)	POTENSIOMETRIC DEPTH (mbgs)	POTENSIOMETRIC ELEVATION ¹ (m)
MW101	101.34	100.36		4.6 - 7.6	2020-08-21	0	0	ND	4.31	96.05 *
MW102	100.31	99.41		4.6 - 7.6	2020-08-21	580	0	ND	5.02	94.39
MW103	100.00	99.11		5.5 - 8.6	2020-08-21	0	1	ND	5.11	94.00 *

Notes:

- 1 - Elevation relative to a local benchmark (top of the pipe at MW101) of 100 m
- 2 - ppmv unless otherwise indicated

mbgs- metres below ground surface

mm - millimetres

ND - Not detected

* - Water level above top of screen

CV - Combustible vapours

OV - Organic Vapours

Table 2a: Soil Analytical Results - Petroleum Hydrocarbon Compounds

	Sample Location:	MW101	MW102	BH1	BH2	BH3	BH4	BH5	
	Sample ID:	MECP ¹	MW101-4.42	MW102-3.05	BH1-0.91	BH2-0.61	BH3-0.61	BH4-5.18	BH5-0.61
	Sampling Date:	Table 2 ²	2020-08-11	2020-08-11	2020-08-11	2020-08-11	2020-08-11	2020-08-11	2020-08-11
	Sample Depth (m):								
BTEX									
Benzene		0.4	<0.020	<0.020	-	-	-	<0.020	-
Toluene		9	<0.020	<0.020	-	-	-	<0.020	-
Ethylbenzene		1.6	<0.020	<0.020	-	-	-	<0.020	-
Total Xylenes		30	<0.040	<0.040	-	-	-	<0.040	-
Petroleum Hydrocarbons (PHC)									
F1 (C6-C10) - BTEX		65	<10	<10	-	-	-	<10	-
F2 (C10-C16)		250	<10	<10	<10	25	<10	<10	<10
F3 (C16-C34)		2500	<50	<50	<50	640	170	<50	<50
F4 (C34-C50)		6600	<50	<50	<50	2200	370	<50	110
Reached Baseline at C50		NV	YES	YES	YES	NO	NO	YES	YES
F4 Gravimetric		6600	-	-	-	11000	1400	-	-

BOLD Result exceeding the applicable standards.

NV No value

- Parameter not analyzed

1. Standards refers to Ministry of the Environment, Conservation and Parks (MECP) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" March 9, 2004, amended as of April 15, 2011.
2. Ministry of the Environment, Conservation and Parks Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition for Industrial/Commercial/Community Property Use in Fine Textured Soils.
3. All units are µg/g unless otherwise specified.

Table 2b: Soil Analytical Results - Polycyclic Aromatic Hydrocarbons

Sample Location:	Polycyclic Aromatic Hydrocarbons				
	Sample ID: MECP ¹	BH1	BH2	BH3	BH4
Sampling Date:	MW101-4.42	BH1-0.91	BH2-0.61	BH3-0.61	BH4-5.18
Sample Depth (m):	2020-08-11	2020-08-11	2020-08-11	2020-08-11	2020-08-11
Polycyclic Aromatic Hydrocarbons (PAHs)					
Acenaphthene	29	<0.0050	<0.0050	<0.050	<0.0050
Acenaphthylene	0.17	<0.0050	<0.0050	<0.050	0.09
Anthracene	0.74	<0.0050	<0.0050	0.19	0.089
Benzo(a)anthracene	0.96	<0.0050	<0.0050	0.71	0.26
Benzo(a)pyrene	0.3	<0.0050	<0.0050	0.7	0.35
Benzo(b)fluoranthene	0.96	<0.0050	<0.0050	0.95	0.42
Benzo(ghi)perylene	9.6	<0.0050	<0.0050	0.52	0.2
Benzo(k)fluoranthene	0.96	<0.0050	<0.0050	0.32	0.14
Chrysene	9.6	<0.0050	<0.0050	0.6	0.19
Dibenz(a,h)anthracene	0.1	<0.0050	<0.0050	0.11	0.051
Fluoranthene	9.6	<0.0050	<0.0050	1.4	0.55
Fluorene	69	<0.0050	<0.0050	<0.050	<0.050
Indeno(1,2,3-cd)pyrene	0.95	<0.0050	<0.0050	0.48	0.22
1-Methylnaphthalene ⁴	42	<0.0050	<0.0050	<0.050	<0.050
2-Methylnaphthalene ⁴	42	<0.0050	<0.0050	<0.050	<0.050
Methylnaphthalene, 2-(1-)	42	<0.0071	<0.0071	<0.071	<0.071
Naphthalene	28	<0.0050	<0.0050	<0.050	<0.050
Phenanthrene	16	<0.0050	<0.0050	0.64	0.22
Pyrene	96	<0.0050	<0.0050	1.2	0.41

BOLD

Result exceeding the applicable standards.

1. Standards refers to Ministry of the Environment, Conservation and Parks (MECP) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" March 9, 2004, amended as of April 15, 2011.

2. Ministry of the Environment, Conservation and Parks Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition for Industrial/Commercial/Community Property Use in Fine Textured Soils.

3. All units are µg/g unless otherwise specified.

4. The methylnaphthalene standards are applicable to both 1-methylnaphthalene and 2-methylnaphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

Table 3a: Groundwater Analytical Results - Petroleum Hydrocarbons

Sample Location:	MW101	MW102	MW103
Sample ID:	MECP ¹	MW101	MW103
Sampling Date:	Table 2 ²	2020-08-21	2020-08-21
Screen Depth (m):	4.6-7.6	4.6-7.6	5.5-8.6
BTEX			
Benzene	5	<0.20	<0.20
Toluene	24	0.26	0.2
Ethylbenzene	2.4	<0.20	<0.20
Total Xylenes	300	<0.40	<0.40
Petroleum Hydrocarbons (PHC)			
F1 (C6-C10) - BTEX	750	<25	<25
F2 (C10-C16)	150	<100	<100
F3 (C16-C34)	500	<200	<200
F4 (C34-C50)	500	<200	<200

BOLD

1. Standards refers to Ministry of the Environment, Conservation and Parks (MECP) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" March 9, 2004, amended as of April 15, 2011.
2. Ministry of the Environment, Conservation and Parks Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition for All Types of Property Use in Fine Textured Soils.
3. All units are $\mu\text{g/L}$ unless otherwise specified.

Table 3b: Groundwater Analytical Results - Polycyclic Aromatic Hydrocarbons

Sample Location:	MW102		
Sample ID:	MECP ¹	MW102	
Sampling Date:	Table 2 ²	2020-08-21	
Screen Depth (m):	4.6-7.6		
Polycyclic Aromatic Hydrocarbons (PAHs)			
Acenaphthene	4.1	<0.0050	
Acenaphthylene	1	<0.0050	
Anthracene	2.4	<0.0050	
Benz(a)anthracene	1	<0.0050	
Benz(a)pyrene	0.01	<0.0050	
Benz(b)fluoranthene	0.1	<0.0050	
Benz(ghi)perylene	0.2	<0.0050	
Benz(k)fluoranthene	0.1	<0.0050	
Chrysene	0.1	<0.0050	
Dibenz(a,h)anthracene	0.2	<0.0050	
Fluoranthene	0.41	<0.0050	
Fluorene	120	<0.0050	
Indeno(1,2,3-cd)pyrene	0.2	<0.0050	
1-Methylnaphthalene ⁴	3.2	<0.0050	
2-Methylnaphthalene ⁴	3.2	<0.0050	
Methylnaphthalene, 2-(1-)	3.2	<0.0071	
Naphthalene	11	<0.0050	
Phenanthrene	1	<0.0050	
Pyrene	4.1	<0.0050	

BOLD

Result exceeding the applicable standards.

1. Standards refers to Ministry of the Environment, Conservation and Parks (MECP)

"Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" March 9, 2004, amended as of April 15, 2011.

2. Ministry of the Environment, Conservation and Parks Table 2: Full Depth

Generic Site Condition Standards in a Potable Ground Water Condition

for All Types of Property Use in Fine Textured Soils.

3. All units are $\mu\text{g/L}$ unless otherwise specified.

4. The methylnaphthalene standards are applicable to both

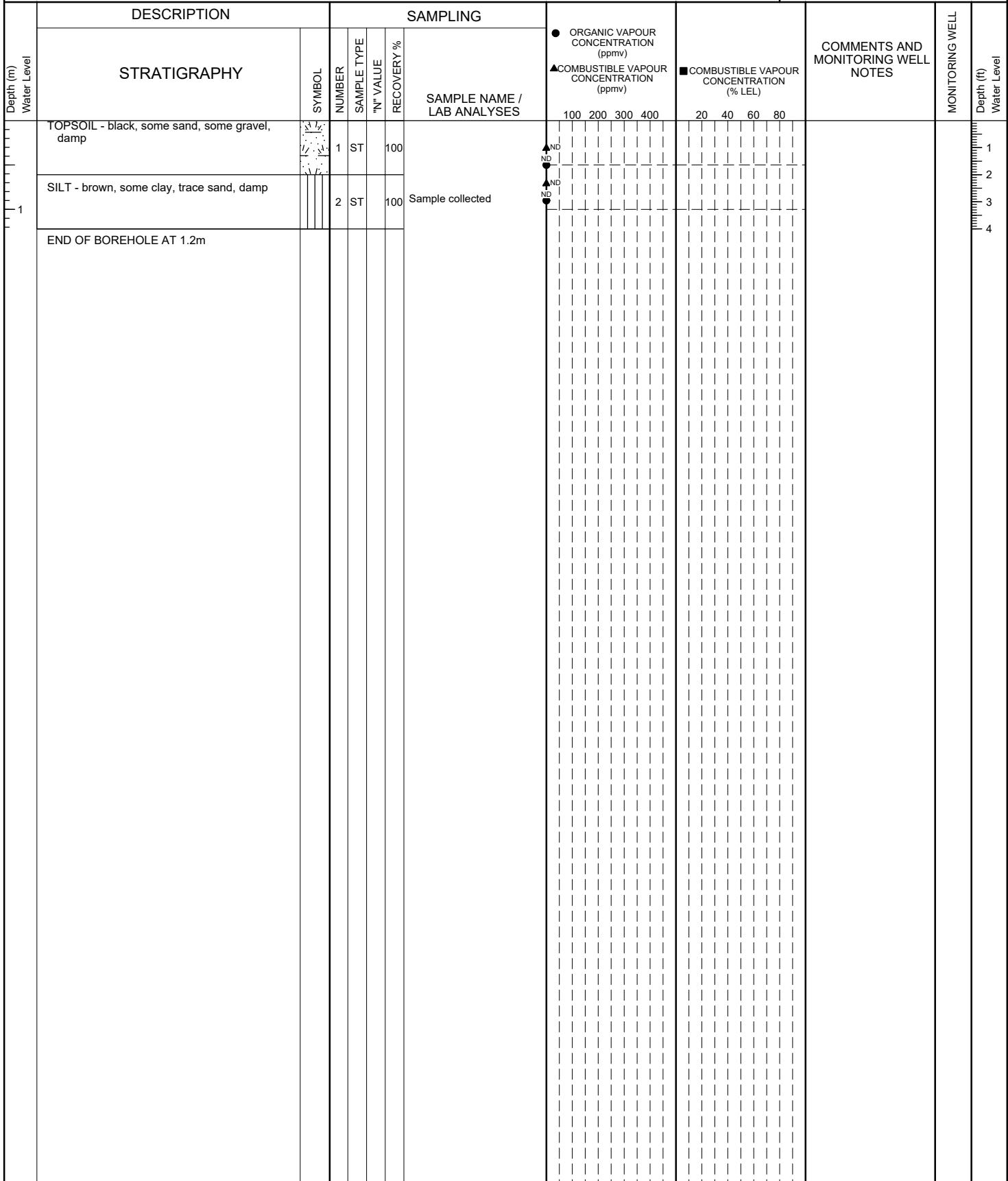
1-methylnaphthalene and 2-methylnaphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.



APPENDIX A
BOREHOLE LOGS

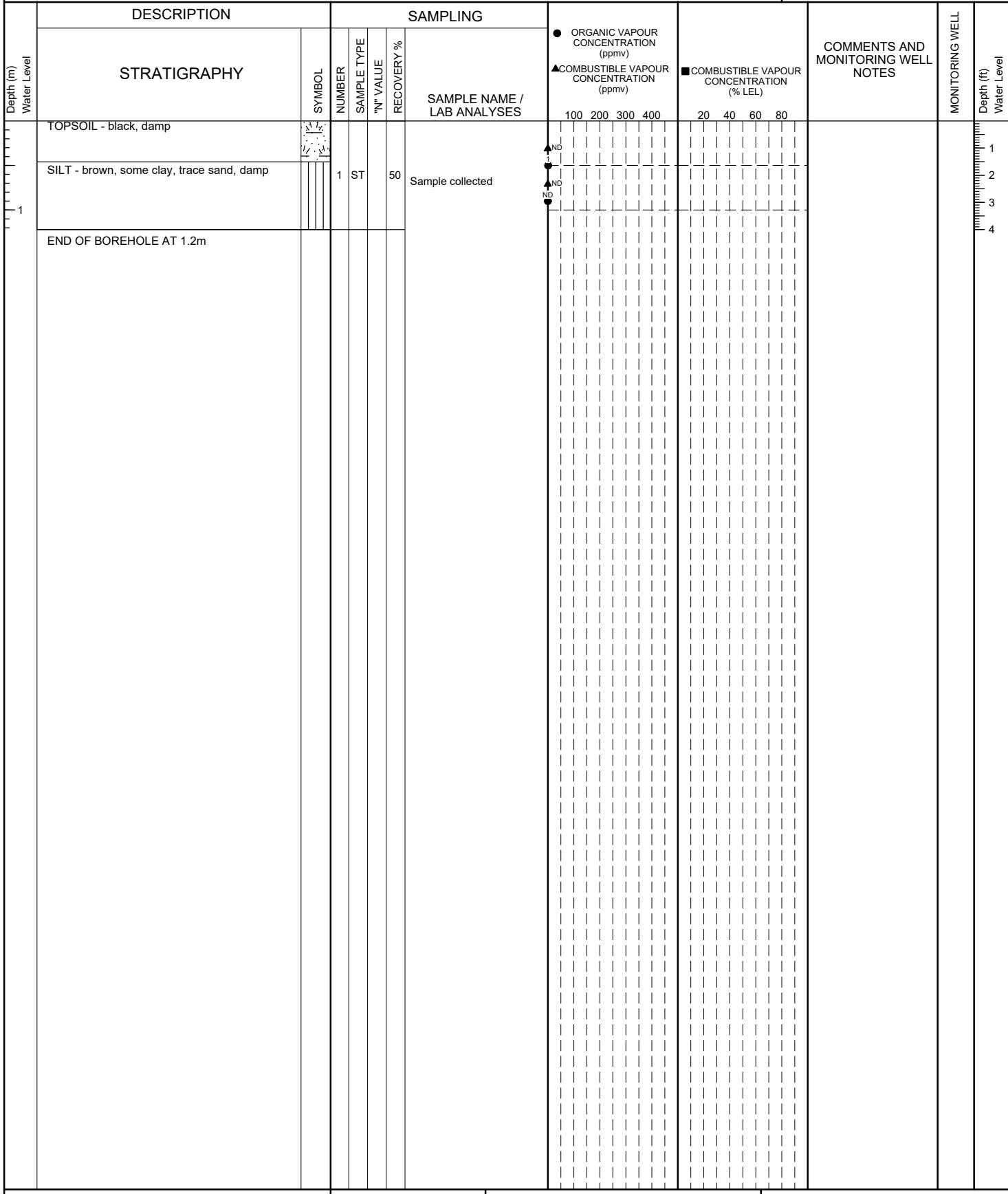
BOREHOLE LOG

PROJECT: Supplementary Subsurface Investigation	REF. NO.:0082-001.02	BOREHOLE NO: BH1
LOCATION: 8079 Eighth Line, Halton Hills, Ontario	TPC ELEV.:N/A	START DATE:8/11/2020
CLIENT: Gilbach Real Estate Development	GRADE ELEV.:N/A	COMPLETION DATE:8/11/2020
BENCHMARK:-N/A		PAGE 1 OF 1



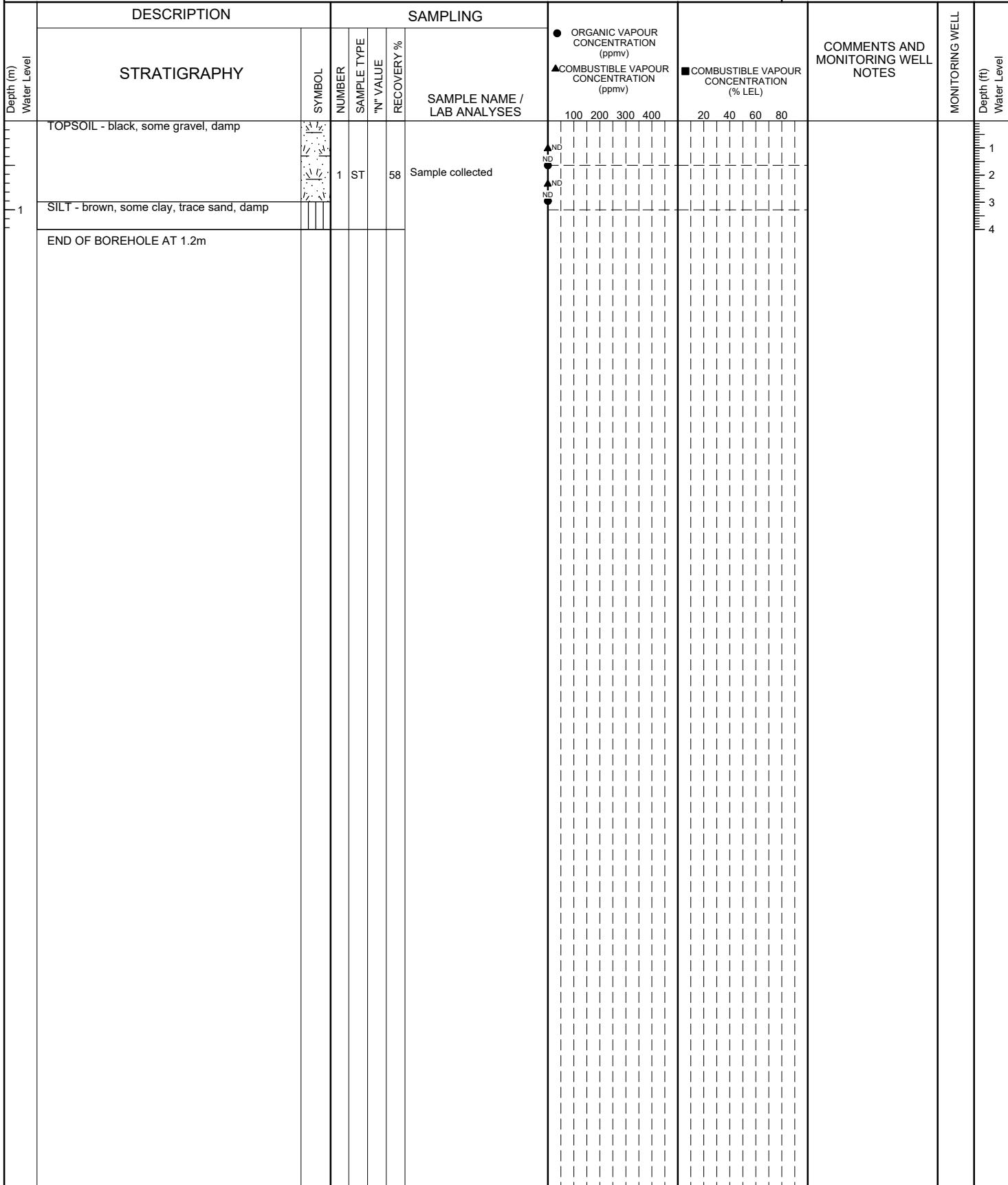
BOREHOLE LOG

PROJECT: Supplementary Subsurface Investigation	REF. NO.:0082-001.02	BOREHOLE NO: BH2
LOCATION: 8079 Eighth Line, Halton Hills, Ontario	TPC ELEV.:N/A	START DATE:8/11/2020
CLIENT: Gilbach Real Estate Development	GRADE ELEV.:N/A	COMPLETION DATE:8/11/2020
BENCHMARK: N/A-		PAGE 1 OF 1



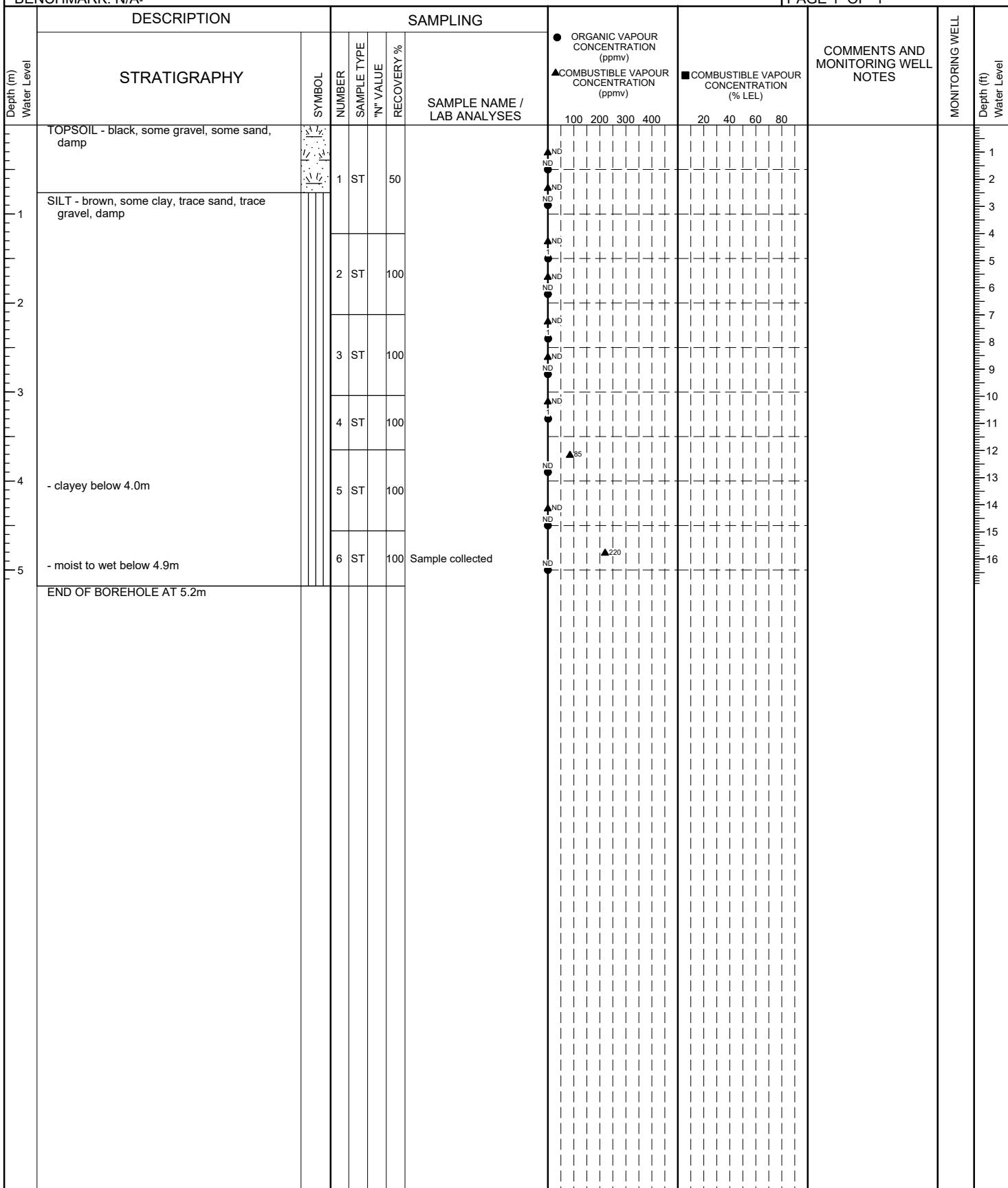
BOREHOLE LOG

PROJECT: Supplementary Subsurface Investigation	REF. NO.:0082-001.02	BOREHOLE NO: BH3
LOCATION: 8079 Eighth Line, Halton Hills, Ontario	TPC ELEV.:N/A	START DATE:8/11/2020
CLIENT: Gilbach Real Estate Development	GRADE ELEV.:N/A	COMPLETION DATE:8/11/2020
BENCHMARK:- N/A		PAGE 1 OF 1



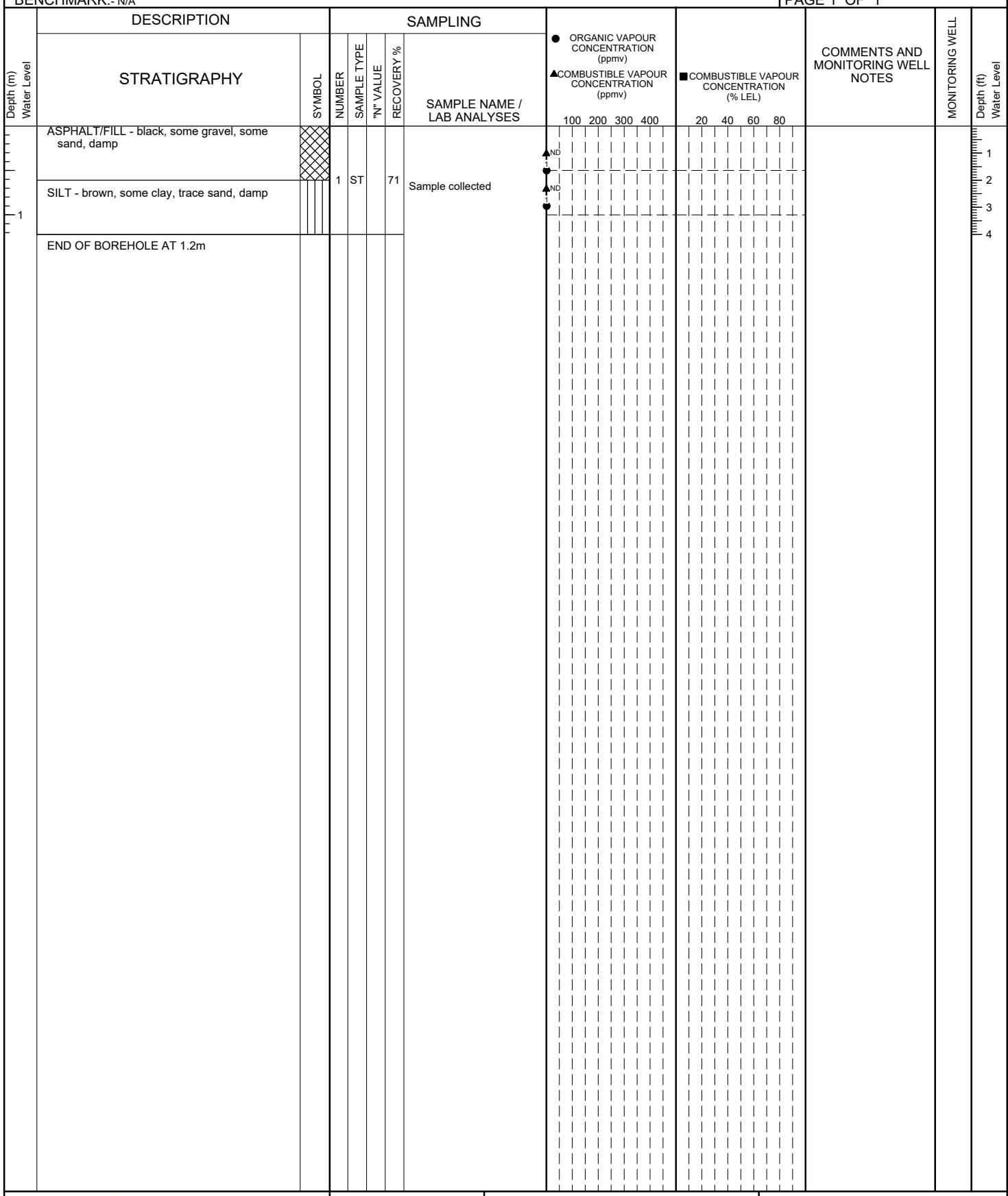
BOREHOLE LOG

PROJECT: Supplementary Subsurface Investigation	REF. NO.:0082-001.02	BOREHOLE NO: BH4
LOCATION: 8079 Eighth Line, Halton Hills, Ontario	TPC ELEV.:N/A	START DATE:8/11/2020
CLIENT: Gilbach Real Estate Development	GRADE ELEV.:N/A	COMPLETION DATE:8/11/2020
BENCHMARK: N/A-		PAGE 1 OF 1



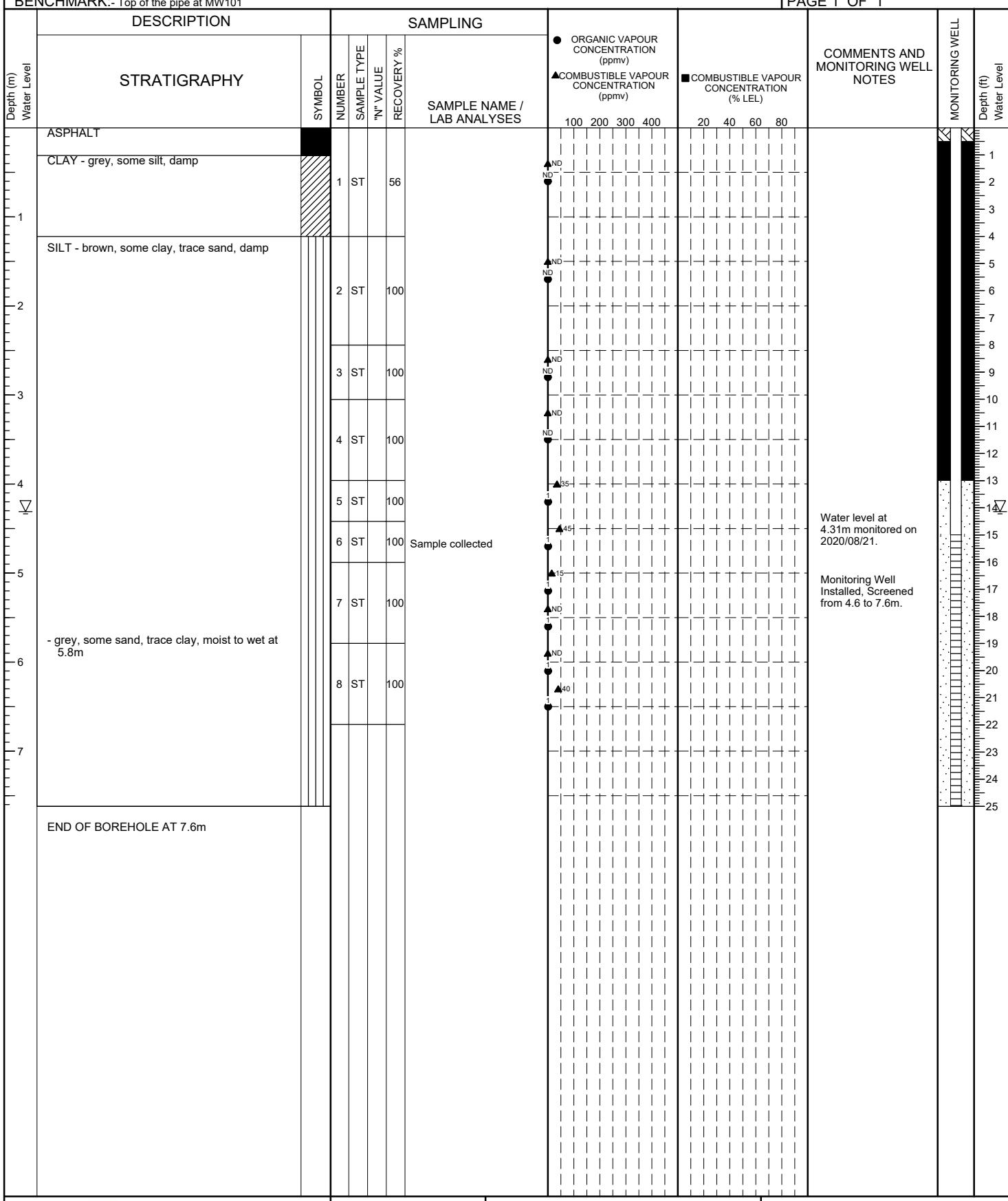
BOREHOLE LOG

PROJECT: Supplementary Subsurface Investigation	REF. NO.:0082-001.02	BOREHOLE NO: BH5
LOCATION: 8079 Eighth Line, Halton Hills, Ontario	TPC ELEV.:N/A	START DATE:8/11/2020
CLIENT: Gilbach Real Estate Development	GRADE ELEV.:N/A	COMPLETION DATE:8/11/2020
BENCHMARK:- N/A		PAGE 1 OF 1



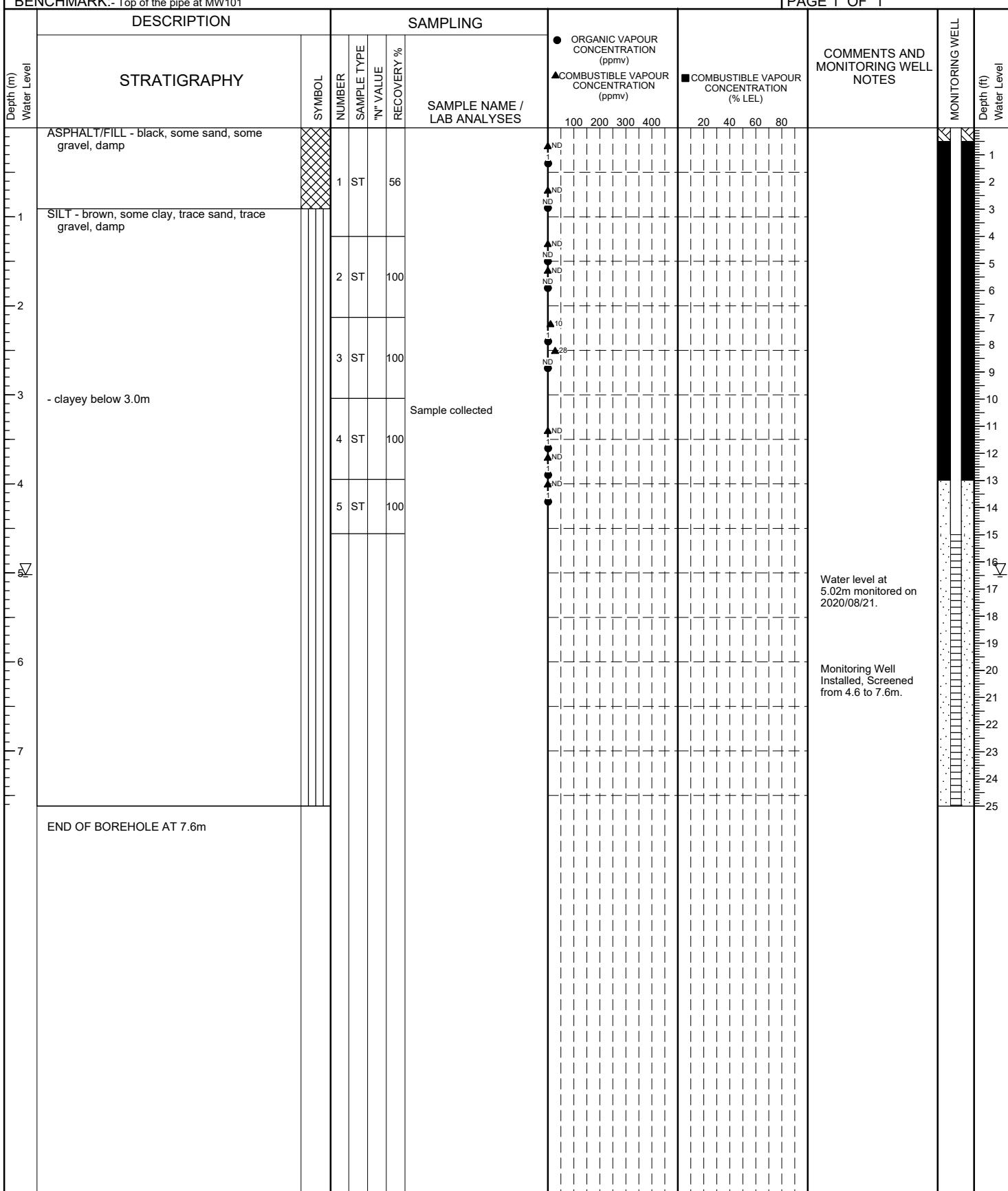
BOREHOLE LOG

PROJECT: Supplementary Subsurface Investigation	REF. NO.:0082-001.02	BOREHOLE NO: MW101
LOCATION: 8079 Eighth Line, Halton Hills, Ontario	TPC ELEV.:101.34m	START DATE:8/11/2020
CLIENT: Gilbach Real Estate Development	GRADE ELEV.: 100.36m	COMPLETION DATE:8/17/2020
BENCHMARK:- Top of the pipe at MW101		PAGE 1 OF 1



BOREHOLE LOG

PROJECT: Supplementary Subsurface Investigation	REF. NO.:0082-001.02	BOREHOLE NO: MW102
LOCATION: 8079 Eighth Line, Halton Hills, Ontario	TPC ELEV.: 100.31m	START DATE:8/11/2020
CLIENT: Gilbach Real Estate Development	GRADE ELEV.: 99.41m	COMPLETION DATE:8/17/2020
BENCHMARK: Top of the pipe at MW101		PAGE 1 OF 1



APPENDIX B

LABORATORY CERTIFICATES OF ANALYSIS



BUREAU
VERITAS

Your P.O. #: 0082-001.01
Your Project #: 0082-001.01
Your C.O.C. #: 149858

Attention: Nawshad Mohsin

BLUEFROG ENVIRONMENTAL CONSULTING INC.
SUITE 100-208 WYECROFT ROAD
OAKVILLE, ON
CANADA L6K 3T8

Report Date: 2020/08/18
Report #: R6297382
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C0K3609

Received: 2020/08/11, 16:34

Sample Matrix: Soil
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Methylnaphthalene Sum	6	N/A	2020/08/15	CAM SOP-00301	EPA 8270D m
Petroleum Hydro. CCME F1 & BTEX in Soil (1)	3	N/A	2020/08/14	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil (2)	7	2020/08/14	2020/08/14	CAM SOP-00316	CCME CWS m
F4G (CCME Hydrocarbons Gravimetric)	2	2020/08/18	2020/08/18	CAM SOP-00316	CCME PHC-CWS m
Moisture	6	N/A	2020/08/12	CAM SOP-00445	Carter 2nd ed 51.2 m
Moisture	1	N/A	2020/08/13	CAM SOP-00445	Carter 2nd ed 51.2 m
PAH Compounds in Soil by GC/MS (SIM)	6	2020/08/14	2020/08/15	CAM SOP-00318	EPA 8270D m

Remarks:

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is the date sampled unless otherwise stated.

(2) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas Laboratories conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1



BUREAU
VERITAS

Your P.O. #: 0082-001.01
Your Project #: 0082-001.01
Your C.O.C. #: 149858

Attention: Nawshad Mohsin

BLUEFROG ENVIRONMENTAL CONSULTING INC.
SUITE 100-208 WYECROFT ROAD
OAKVILLE, ON
CANADA L6K 3T8

Report Date: 2020/08/18
Report #: R6297382
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C0K3609

Received: 2020/08/11, 16:34

Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Ema Gitej, Senior Project Manager

Email: Ema.Gitej@bvlabs.com

Phone# (905)817-5829

=====
This report has been generated and distributed using a secure automated process.

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total Cover Pages : 2
Page 2 of 23

BUREAU
VERITAS

BV Labs Job #: COK3609

Report Date: 2020/08/18

BLUEFROG ENVIRONMENTAL CONSULTING INC.

Client Project #: 0082-001.01

Your P.O. #: 0082-001.01

Sampler Initials: CT

O.REG 153 PAHS (SOIL)

BV Labs ID		NIO381	NIO384		NIO384			NIO385			
Sampling Date		2020/08/11 10:00	2020/08/11 12:15		2020/08/11 12:15			2020/08/11 12:50			
COC Number		149858	149858		149858			149858			
	UNITS	MW101 - 4.42	BH1 - 0.91	RDL	QC Batch	BH1 - 0.91 Lab-Dup	RDL	QC Batch	BH2 - 0.61	RDL	QC Batch

Calculated Parameters

Methylnaphthalene, 2-(1-)	ug/g	<0.0071	<0.0071	0.0071	6883660			<0.071	0.071	6883660
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Polycyclic Aromatic Hydrocarbons

Acenaphthene	ug/g	<0.0050	<0.0050	0.0050	6890510	<0.0050	0.0050	6890510	<0.050	0.050	6890510
Acenaphthylene	ug/g	<0.0050	<0.0050	0.0050	6890510	<0.0050	0.0050	6890510	<0.050	0.050	6890510
Anthracene	ug/g	<0.0050	<0.0050	0.0050	6890510	<0.0050	0.0050	6890510	0.19	0.050	6890510
Benzo(a)anthracene	ug/g	<0.0050	<0.0050	0.0050	6890510	<0.0050	0.0050	6890510	0.71	0.050	6890510
Benzo(a)pyrene	ug/g	<0.0050	<0.0050	0.0050	6890510	<0.0050	0.0050	6890510	0.70	0.050	6890510
Benzo(b/j)fluoranthene	ug/g	<0.0050	<0.0050	0.0050	6890510	<0.0050	0.0050	6890510	0.95	0.050	6890510
Benzo(g,h,i)perylene	ug/g	<0.0050	<0.0050	0.0050	6890510	<0.0050	0.0050	6890510	0.52	0.050	6890510
Benzo(k)fluoranthene	ug/g	<0.0050	<0.0050	0.0050	6890510	<0.0050	0.0050	6890510	0.32	0.050	6890510
Chrysene	ug/g	<0.0050	<0.0050	0.0050	6890510	<0.0050	0.0050	6890510	0.60	0.050	6890510
Dibeno(a,h)anthracene	ug/g	<0.0050	<0.0050	0.0050	6890510	<0.0050	0.0050	6890510	0.11	0.050	6890510
Fluoranthene	ug/g	<0.0050	<0.0050	0.0050	6890510	<0.0050	0.0050	6890510	1.4	0.050	6890510
Fluorene	ug/g	<0.0050	<0.0050	0.0050	6890510	<0.0050	0.0050	6890510	<0.050	0.050	6890510
Indeno(1,2,3-cd)pyrene	ug/g	<0.0050	<0.0050	0.0050	6890510	<0.0050	0.0050	6890510	0.48	0.050	6890510
1-Methylnaphthalene	ug/g	<0.0050	<0.0050	0.0050	6890510	<0.0050	0.0050	6890510	<0.050	0.050	6890510
2-Methylnaphthalene	ug/g	<0.0050	<0.0050	0.0050	6890510	<0.0050	0.0050	6890510	<0.050	0.050	6890510
Naphthalene	ug/g	<0.0050	<0.0050	0.0050	6890510	<0.0050	0.0050	6890510	<0.050	0.050	6890510
Phenanthrene	ug/g	<0.0050	<0.0050	0.0050	6890510	<0.0050	0.0050	6890510	0.64	0.050	6890510
Pyrene	ug/g	<0.0050	<0.0050	0.0050	6890510	<0.0050	0.0050	6890510	1.2	0.050	6890510

Surrogate Recovery (%)

D10-Anthracene	%	108	103		6890510	102		6890510	125		6890510
D14-Terphenyl (FS)	%	99	98		6890510	96		6890510	105		6890510
D8-Acenaphthylene	%	95	91		6890510	92		6890510	110		6890510

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Lab-Dup = Laboratory Initiated Duplicate



BUREAU
VERITAS

BV Labs Job #: COK3609

Report Date: 2020/08/18

BLUEFROG ENVIRONMENTAL CONSULTING INC.

Client Project #: 0082-001.01

Your P.O. #: 0082-001.01

Sampler Initials: CT

O.REG 153 PAHS (SOIL)

BV Labs ID		NIO386		NIO387	NIO388		
Sampling Date		2020/08/11 14:20		2020/08/11 15:00	2020/08/11 15:25		
COC Number		149858		149858	149858		
	UNITS	BH3 - 0.61	RDL	BH4 - 5.18	BH5 - 0.61	RDL	QC Batch
Calculated Parameters							
Methylnaphthalene, 2-(1-)	ug/g	<0.071	0.071	<0.0071	<0.0071	0.0071	6883660
Polyaromatic Hydrocarbons							
Acenaphthene	ug/g	<0.050	0.050	<0.0050	<0.0050	0.0050	6890510
Acenaphthylene	ug/g	0.090	0.050	<0.0050	<0.0050	0.0050	6890510
Anthracene	ug/g	0.089	0.050	<0.0050	<0.0050	0.0050	6890510
Benzo(a)anthracene	ug/g	0.26	0.050	<0.0050	<0.0050	0.0050	6890510
Benzo(a)pyrene	ug/g	0.35	0.050	<0.0050	<0.0050	0.0050	6890510
Benzo(b/j)fluoranthene	ug/g	0.42	0.050	<0.0050	<0.0050	0.0050	6890510
Benzo(g,h,i)perylene	ug/g	0.20	0.050	<0.0050	<0.0050	0.0050	6890510
Benzo(k)fluoranthene	ug/g	0.14	0.050	<0.0050	<0.0050	0.0050	6890510
Chrysene	ug/g	0.19	0.050	<0.0050	<0.0050	0.0050	6890510
Dibeno(a,h)anthracene	ug/g	0.051	0.050	<0.0050	<0.0050	0.0050	6890510
Fluoranthene	ug/g	0.55	0.050	<0.0050	<0.0050	0.0050	6890510
Fluorene	ug/g	<0.050	0.050	<0.0050	<0.0050	0.0050	6890510
Indeno(1,2,3-cd)pyrene	ug/g	0.22	0.050	<0.0050	<0.0050	0.0050	6890510
1-Methylnaphthalene	ug/g	<0.050	0.050	<0.0050	<0.0050	0.0050	6890510
2-Methylnaphthalene	ug/g	<0.050	0.050	<0.0050	<0.0050	0.0050	6890510
Naphthalene	ug/g	<0.050	0.050	<0.0050	<0.0050	0.0050	6890510
Phenanthrene	ug/g	0.22	0.050	<0.0050	<0.0050	0.0050	6890510
Pyrene	ug/g	0.41	0.050	<0.0050	<0.0050	0.0050	6890510
Surrogate Recovery (%)							
D10-Anthracene	%	123		102	100		6890510
D14-Terphenyl (FS)	%	96		89	95		6890510
D8-Acenaphthylene	%	104		73	91		6890510

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch



BUREAU
VERITAS

BV Labs Job #: COK3609

Report Date: 2020/08/18

BLUEFROG ENVIRONMENTAL CONSULTING INC.

Client Project #: 0082-001.01

Your P.O. #: 0082-001.01

Sampler Initials: CT

O.REG 153 PHCS, BTEX/F1-F4 (SOIL)

BV Labs ID		NIO381		NIO382		NIO387		
Sampling Date		2020/08/11 10:00		2020/08/11 14:00		2020/08/11 15:00		
COC Number		149858		149858		149858		
	UNITS	MW101 - 4.42	QC Batch	MW102 - 3.05	QC Batch	BH4 - 5.18	RDL	QC Batch
Inorganics								
Moisture	%	11	6885162	10	6887755	17	1.0	6885162
BTEX & F1 Hydrocarbons								
Benzene	ug/g	<0.020	6887269	<0.020	6887269	<0.020	0.020	6887269
Toluene	ug/g	<0.020	6887269	<0.020	6887269	<0.020	0.020	6887269
Ethylbenzene	ug/g	<0.020	6887269	<0.020	6887269	<0.020	0.020	6887269
o-Xylene	ug/g	<0.020	6887269	<0.020	6887269	<0.020	0.020	6887269
p+m-Xylene	ug/g	<0.040	6887269	<0.040	6887269	<0.040	0.040	6887269
Total Xylenes	ug/g	<0.040	6887269	<0.040	6887269	<0.040	0.040	6887269
F1 (C6-C10)	ug/g	<10	6887269	<10	6887269	<10	10	6887269
F1 (C6-C10) - BTEX	ug/g	<10	6887269	<10	6887269	<10	10	6887269
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	<10	6889278	<10	6889278	<10	10	6889278
F3 (C16-C34 Hydrocarbons)	ug/g	<50	6889278	<50	6889278	<50	50	6889278
F4 (C34-C50 Hydrocarbons)	ug/g	<50	6889278	<50	6889278	<50	50	6889278
Reached Baseline at C50	ug/g	Yes	6889278	Yes	6889278	Yes		6889278
Surrogate Recovery (%)								
1,4-Difluorobenzene	%	99	6887269	99	6887269	99		6887269
4-Bromofluorobenzene	%	98	6887269	98	6887269	99		6887269
D10-o-Xylene	%	99	6887269	99	6887269	98		6887269
D4-1,2-Dichloroethane	%	103	6887269	102	6887269	105		6887269
o-Terphenyl	%	93	6889278	96	6889278	97		6889278
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								



BUREAU
VERITAS

BV Labs Job #: COK3609

Report Date: 2020/08/18

BLUEFROG ENVIRONMENTAL CONSULTING INC.

Client Project #: 0082-001.01

Your P.O. #: 0082-001.01

Sampler Initials: CT

RESULTS OF ANALYSES OF SOIL

BV Labs ID		NIO384	NIO385	NIO386	NIO388		
Sampling Date		2020/08/11 12:15	2020/08/11 12:50	2020/08/11 14:20	2020/08/11 15:25		
COC Number		149858	149858	149858	149858		
	UNITS	BH1 - 0.91	BH2 - 0.61	BH3 - 0.61	BH5 - 0.61	RDL	QC Batch
Inorganics							
Moisture	%	23	22	9.4	16	1.0	6885162
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							

BUREAU
VERITAS

BV Labs Job #: COK3609

Report Date: 2020/08/18

BLUEFROG ENVIRONMENTAL CONSULTING INC.

Client Project #: 0082-001.01

Your P.O. #: 0082-001.01

Sampler Initials: CT

PETROLEUM HYDROCARBONS (CCME)

BV Labs ID		NIO384	NIO384			NIO385	NIO386		
Sampling Date		2020/08/11 12:15	2020/08/11 12:15			2020/08/11 12:50	2020/08/11 14:20		
COC Number		149858	149858			149858	149858		
	UNITS	BH1 - 0.91 Lab-Dup	RDL	QC Batch		BH2 - 0.61	BH3 - 0.61	RDL	QC Batch

F2-F4 Hydrocarbons

F4G-sg (Grav. Heavy Hydrocarbons)	ug/g					11000	1400	100	6895509
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	10	6889278	25	<10	10	6889278
F3 (C16-C34 Hydrocarbons)	ug/g	<50	<50	50	6889278	640	170	50	6889278
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	50	6889278	2200	370	50	6889278
Reached Baseline at C50	ug/g	Yes	Yes		6889278	No	No		6889278

Surrogate Recovery (%)

o-Terphenyl	%	93	94		6889278	92	92		6889278
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RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Lab-Dup = Laboratory Initiated Duplicate

BV Labs ID		NIO388		
Sampling Date		2020/08/11 15:25		
COC Number		149858		
	UNITS	BH5 - 0.61	RDL	QC Batch

F2-F4 Hydrocarbons

F2 (C10-C16 Hydrocarbons)	ug/g	<10	10	6889278
F3 (C16-C34 Hydrocarbons)	ug/g	<50	50	6889278
F4 (C34-C50 Hydrocarbons)	ug/g	110	50	6889278
Reached Baseline at C50	ug/g	Yes		6889278

Surrogate Recovery (%)

o-Terphenyl	%	92		6889278
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RDL = Reportable Detection Limit

QC Batch = Quality Control Batch



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BV Labs Job #: COK3609

Report Date: 2020/08/18

BLUEFROG ENVIRONMENTAL CONSULTING INC.

Client Project #: 0082-001.01

Your P.O. #: 0082-001.01

Sampler Initials: CT

TEST SUMMARY

BV Labs ID: NIO381
Sample ID: MW101 - 4.42
Matrix: Soil

Collected: 2020/08/11
Shipped:
Received: 2020/08/11

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6883660	N/A	2020/08/15	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	6887269	N/A	2020/08/14	Joe Paino
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6889278	2020/08/14	2020/08/14	(Kent) Maolin Li
Moisture	BAL	6885162	N/A	2020/08/12	Prgya Panchal
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	6890510	2020/08/14	2020/08/15	Mitesh Raj

BV Labs ID: NIO382
Sample ID: MW102 - 3.05
Matrix: Soil

Collected: 2020/08/11
Shipped:
Received: 2020/08/11

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	6887269	N/A	2020/08/14	Joe Paino
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6889278	2020/08/14	2020/08/14	(Kent) Maolin Li
Moisture	BAL	6887755	N/A	2020/08/13	Gurpreet Kaur (ONT)

BV Labs ID: NIO384
Sample ID: BH1 - 0.91
Matrix: Soil

Collected: 2020/08/11
Shipped:
Received: 2020/08/11

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6883660	N/A	2020/08/15	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6889278	2020/08/14	2020/08/14	(Kent) Maolin Li
Moisture	BAL	6885162	N/A	2020/08/12	Prgya Panchal
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	6890510	2020/08/14	2020/08/15	Mitesh Raj

BV Labs ID: NIO384 Dup
Sample ID: BH1 - 0.91
Matrix: Soil

Collected: 2020/08/11
Shipped:
Received: 2020/08/11

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6889278	2020/08/14	2020/08/14	(Kent) Maolin Li
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	6890510	2020/08/14	2020/08/15	Mitesh Raj

BV Labs ID: NIO385
Sample ID: BH2 - 0.61
Matrix: Soil

Collected: 2020/08/11
Shipped:
Received: 2020/08/11

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6883660	N/A	2020/08/15	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6889278	2020/08/14	2020/08/14	(Kent) Maolin Li
F4G (CCME Hydrocarbons Gravimetric)	BAL	6895509	2020/08/18	2020/08/18	Imelda Villanueva
Moisture	BAL	6885162	N/A	2020/08/12	Prgya Panchal
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	6890510	2020/08/14	2020/08/15	Mitesh Raj



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BV Labs Job #: COK3609

Report Date: 2020/08/18

BLUEFROG ENVIRONMENTAL CONSULTING INC.

Client Project #: 0082-001.01

Your P.O. #: 0082-001.01

Sampler Initials: CT

TEST SUMMARY

BV Labs ID: NIO386
Sample ID: BH3 - 0.61
Matrix: Soil

Collected: 2020/08/11
Shipped:
Received: 2020/08/11

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6883660	N/A	2020/08/15	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6889278	2020/08/14	2020/08/14	(Kent) Maolin Li
F4G (CCME Hydrocarbons Gravimetric)	BAL	6895509	2020/08/18	2020/08/18	Imelda Villanueva
Moisture	BAL	6885162	N/A	2020/08/12	Prgya Panchal
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	6890510	2020/08/14	2020/08/15	Mitesh Raj

BV Labs ID: NIO387
Sample ID: BH4 - 5.18
Matrix: Soil

Collected: 2020/08/11
Shipped:
Received: 2020/08/11

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6883660	N/A	2020/08/15	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	6887269	N/A	2020/08/14	Joe Paino
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6889278	2020/08/14	2020/08/14	(Kent) Maolin Li
Moisture	BAL	6885162	N/A	2020/08/12	Prgya Panchal
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	6890510	2020/08/14	2020/08/15	Mitesh Raj

BV Labs ID: NIO388
Sample ID: BH5 - 0.61
Matrix: Soil

Collected: 2020/08/11
Shipped:
Received: 2020/08/11

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6883660	N/A	2020/08/15	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6889278	2020/08/14	2020/08/14	(Kent) Maolin Li
Moisture	BAL	6885162	N/A	2020/08/12	Prgya Panchal
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	6890510	2020/08/14	2020/08/15	Mitesh Raj



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BV Labs Job #: COK3609

Report Date: 2020/08/18

BLUEFROG ENVIRONMENTAL CONSULTING INC.

Client Project #: 0082-001.01

Your P.O. #: 0082-001.01

Sampler Initials: CT

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	4.3°C
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Sample NIO382 [MW102 - 3.05] : Sample analyzed for Reg. 153 PHCs as per client request.

Sample NIO385 [BH2 - 0.61] : PAH analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Sample NIO386 [BH3 - 0.61] : PAH analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Sample NIO387 [BH4 - 5.18] : Sample ID updated as per client request.

F1/BTEX Analysis: Soil weight exceeds the protocol specification of approximately 5g in the field preserved vial. Additional methanol was added to the vial to ensure extraction efficiency.

Results relate only to the items tested.



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BV Labs Job #: COK3609

Report Date: 2020/08/18

BLUEFROG ENVIRONMENTAL CONSULTING INC.

Client Project #: 0082-001.01

Your P.O. #: 0082-001.01

Sampler Initials: CT

QUALITY ASSURANCE REPORT

QA/QC	Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6885162		KJP	RPD	Moisture	2020/08/12	1.8		%	20
6887269		JP5	Matrix Spike	1,4-Difluorobenzene	2020/08/14		97	%	60 - 140
				4-Bromofluorobenzene	2020/08/14		100	%	60 - 140
				D10-o-Xylene	2020/08/14		111	%	60 - 140
				D4-1,2-Dichloroethane	2020/08/14		101	%	60 - 140
				Benzene	2020/08/14		115	%	60 - 140
				Toluene	2020/08/14		111	%	60 - 140
				Ethylbenzene	2020/08/14		121	%	60 - 140
				o-Xylene	2020/08/14		118	%	60 - 140
				p+m-Xylene	2020/08/14		119	%	60 - 140
				F1 (C6-C10)	2020/08/14		111	%	60 - 140
6887269		JP5	Spiked Blank	1,4-Difluorobenzene	2020/08/14		98	%	60 - 140
				4-Bromofluorobenzene	2020/08/14		99	%	60 - 140
				D10-o-Xylene	2020/08/14		94	%	60 - 140
				D4-1,2-Dichloroethane	2020/08/14		102	%	60 - 140
				Benzene	2020/08/14		98	%	60 - 140
				Toluene	2020/08/14		94	%	60 - 140
				Ethylbenzene	2020/08/14		102	%	60 - 140
				o-Xylene	2020/08/14		100	%	60 - 140
				p+m-Xylene	2020/08/14		99	%	60 - 140
				F1 (C6-C10)	2020/08/14		90	%	80 - 120
6887269		JP5	Method Blank	1,4-Difluorobenzene	2020/08/14		100	%	60 - 140
				4-Bromofluorobenzene	2020/08/14		99	%	60 - 140
				D10-o-Xylene	2020/08/14		99	%	60 - 140
				D4-1,2-Dichloroethane	2020/08/14		101	%	60 - 140
				Benzene	2020/08/14	<0.020		ug/g	
				Toluene	2020/08/14	<0.020		ug/g	
				Ethylbenzene	2020/08/14	<0.020		ug/g	
				o-Xylene	2020/08/14	<0.020		ug/g	
				p+m-Xylene	2020/08/14	<0.040		ug/g	
				Total Xylenes	2020/08/14	<0.040		ug/g	
				F1 (C6-C10)	2020/08/14	<10		ug/g	
				F1 (C6-C10) - BTEX	2020/08/14	<10		ug/g	
6887269		JP5	RPD	Benzene	2020/08/14	NC		%	50
				Toluene	2020/08/14	NC		%	50
				Ethylbenzene	2020/08/14	NC		%	50
				o-Xylene	2020/08/14	NC		%	50
				p+m-Xylene	2020/08/14	NC		%	50
				Total Xylenes	2020/08/14	NC		%	50
				F1 (C6-C10)	2020/08/14	NC		%	30
				F1 (C6-C10) - BTEX	2020/08/14	NC		%	30
6887755		KJP	RPD	Moisture	2020/08/13	0		%	20
6889278		KLI	Matrix Spike [NIO384-01]	o-Terphenyl	2020/08/14		97	%	60 - 130
				F2 (C10-C16 Hydrocarbons)	2020/08/14		107	%	50 - 130
				F3 (C16-C34 Hydrocarbons)	2020/08/14		109	%	50 - 130
				F4 (C34-C50 Hydrocarbons)	2020/08/14		109	%	50 - 130
6889278		KLI	Spiked Blank	o-Terphenyl	2020/08/14		93	%	60 - 130
				F2 (C10-C16 Hydrocarbons)	2020/08/14		100	%	80 - 120
				F3 (C16-C34 Hydrocarbons)	2020/08/14		102	%	80 - 120
				F4 (C34-C50 Hydrocarbons)	2020/08/14		102	%	80 - 120
6889278		KLI	Method Blank	o-Terphenyl	2020/08/14		99	%	60 - 130



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BV Labs Job #: COK3609

Report Date: 2020/08/18

BLUEFROG ENVIRONMENTAL CONSULTING INC.

Client Project #: 0082-001.01

Your P.O. #: 0082-001.01

Sampler Initials: CT

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC	Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6889278	KLI	RPD [NIO384-01]		F2 (C10-C16 Hydrocarbons)	2020/08/14	<10		ug/g	
				F3 (C16-C34 Hydrocarbons)	2020/08/14	<50		ug/g	
				F4 (C34-C50 Hydrocarbons)	2020/08/14	<50		ug/g	
				F2 (C10-C16 Hydrocarbons)	2020/08/14	NC	%	30	
				F3 (C16-C34 Hydrocarbons)	2020/08/14	NC	%	30	
				F4 (C34-C50 Hydrocarbons)	2020/08/14	NC	%	30	
6890510	RAJ	Matrix Spike [NIO384-01]		D10-Anthracene	2020/08/15		99	%	50 - 130
				D14-Terphenyl (FS)	2020/08/15		95	%	50 - 130
				D8-Acenaphthylene	2020/08/15		92	%	50 - 130
				Acenaphthene	2020/08/15		102	%	50 - 130
				Acenaphthylene	2020/08/15		93	%	50 - 130
				Anthracene	2020/08/15		95	%	50 - 130
				Benzo(a)anthracene	2020/08/15		107	%	50 - 130
				Benzo(a)pyrene	2020/08/15		104	%	50 - 130
				Benzo(b/j)fluoranthene	2020/08/15		117	%	50 - 130
				Benzo(g,h,i)perylene	2020/08/15		96	%	50 - 130
				Benzo(k)fluoranthene	2020/08/15		92	%	50 - 130
				Chrysene	2020/08/15		114	%	50 - 130
				Dibenz(a,h)anthracene	2020/08/15		103	%	50 - 130
				Fluoranthene	2020/08/15		109	%	50 - 130
				Fluorene	2020/08/15		101	%	50 - 130
				Indeno(1,2,3-cd)pyrene	2020/08/15		98	%	50 - 130
				1-Methylnaphthalene	2020/08/15		93	%	50 - 130
				2-Methylnaphthalene	2020/08/15		90	%	50 - 130
				Naphthalene	2020/08/15		81	%	50 - 130
				Phenanthrene	2020/08/15		104	%	50 - 130
				Pyrene	2020/08/15		107	%	50 - 130
6890510	RAJ	Spiked Blank		D10-Anthracene	2020/08/14		105	%	50 - 130
				D14-Terphenyl (FS)	2020/08/14		100	%	50 - 130
				D8-Acenaphthylene	2020/08/14		98	%	50 - 130
				Acenaphthene	2020/08/14		107	%	50 - 130
				Acenaphthylene	2020/08/14		96	%	50 - 130
				Anthracene	2020/08/14		95	%	50 - 130
				Benzo(a)anthracene	2020/08/14		109	%	50 - 130
				Benzo(a)pyrene	2020/08/14		107	%	50 - 130
				Benzo(b/j)fluoranthene	2020/08/14		119	%	50 - 130
				Benzo(g,h,i)perylene	2020/08/14		98	%	50 - 130
				Benzo(k)fluoranthene	2020/08/14		109	%	50 - 130
				Chrysene	2020/08/14		116	%	50 - 130
				Dibenz(a,h)anthracene	2020/08/14		97	%	50 - 130
				Fluoranthene	2020/08/14		111	%	50 - 130
				Fluorene	2020/08/14		103	%	50 - 130
				Indeno(1,2,3-cd)pyrene	2020/08/14		98	%	50 - 130
				1-Methylnaphthalene	2020/08/14		103	%	50 - 130
				2-Methylnaphthalene	2020/08/14		98	%	50 - 130
				Naphthalene	2020/08/14		95	%	50 - 130
				Phenanthrene	2020/08/14		110	%	50 - 130
				Pyrene	2020/08/14		109	%	50 - 130
6890510	RAJ	Method Blank		D10-Anthracene	2020/08/14		99	%	50 - 130
				D14-Terphenyl (FS)	2020/08/14		93	%	50 - 130
				D8-Acenaphthylene	2020/08/14		92	%	50 - 130



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BV Labs Job #: COK3609

Report Date: 2020/08/18

BLUEFROG ENVIRONMENTAL CONSULTING INC.

Client Project #: 0082-001.01

Your P.O. #: 0082-001.01

Sampler Initials: CT

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC	Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6890510	RAJ	RPD [NIO384-01]		Acenaphthene	2020/08/14	<0.0050		ug/g	
				Acenaphthylene	2020/08/14	<0.0050		ug/g	
				Anthracene	2020/08/14	<0.0050		ug/g	
				Benzo(a)anthracene	2020/08/14	<0.0050		ug/g	
				Benzo(a)pyrene	2020/08/14	<0.0050		ug/g	
				Benzo(b/j)fluoranthene	2020/08/14	<0.0050		ug/g	
				Benzo(g,h,i)perylene	2020/08/14	<0.0050		ug/g	
				Benzo(k)fluoranthene	2020/08/14	<0.0050		ug/g	
				Chrysene	2020/08/14	<0.0050		ug/g	
				Dibenzo(a,h)anthracene	2020/08/14	<0.0050		ug/g	
				Fluoranthene	2020/08/14	<0.0050		ug/g	
				Fluorene	2020/08/14	<0.0050		ug/g	
				Indeno(1,2,3-cd)pyrene	2020/08/14	<0.0050		ug/g	
				1-Methylnaphthalene	2020/08/14	<0.0050		ug/g	
				2-Methylnaphthalene	2020/08/14	<0.0050		ug/g	
				Naphthalene	2020/08/14	<0.0050		ug/g	
				Phenanthrene	2020/08/14	<0.0050		ug/g	
				Pyrene	2020/08/14	<0.0050		ug/g	
				Acenaphthene	2020/08/15	NC		%	40
				Acenaphthylene	2020/08/15	NC		%	40
				Anthracene	2020/08/15	NC		%	40
				Benzo(a)anthracene	2020/08/15	NC		%	40
				Benzo(a)pyrene	2020/08/15	NC		%	40
				Benzo(b/j)fluoranthene	2020/08/15	NC		%	40
				Benzo(g,h,i)perylene	2020/08/15	NC		%	40
				Benzo(k)fluoranthene	2020/08/15	NC		%	40
				Chrysene	2020/08/15	NC		%	40
				Dibenzo(a,h)anthracene	2020/08/15	NC		%	40
				Fluoranthene	2020/08/15	NC		%	40
				Fluorene	2020/08/15	NC		%	40
				Indeno(1,2,3-cd)pyrene	2020/08/15	NC		%	40
				1-Methylnaphthalene	2020/08/15	NC		%	40
				2-Methylnaphthalene	2020/08/15	NC		%	40
				Naphthalene	2020/08/15	NC		%	40
				Phenanthrene	2020/08/15	NC		%	40
				Pyrene	2020/08/15	NC		%	40
6895509	IV	Matrix Spike		F4G-sg (Grav. Heavy Hydrocarbons)	2020/08/18		98	%	65 - 135
6895509	IV	Spiked Blank		F4G-sg (Grav. Heavy Hydrocarbons)	2020/08/18		103	%	65 - 135
6895509	IV	Method Blank		F4G-sg (Grav. Heavy Hydrocarbons)	2020/08/18	<100		ug/g	
6895509	IV	RPD		F4G-sg (Grav. Heavy Hydrocarbons)	2020/08/18	8.0		%	50

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).



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BV Labs Job #: COK3609

Report Date: 2020/08/18

BLUEFROG ENVIRONMENTAL CONSULTING INC.

Client Project #: 0082-001.01

Your P.O. #: 0082-001.01

Sampler Initials: CT

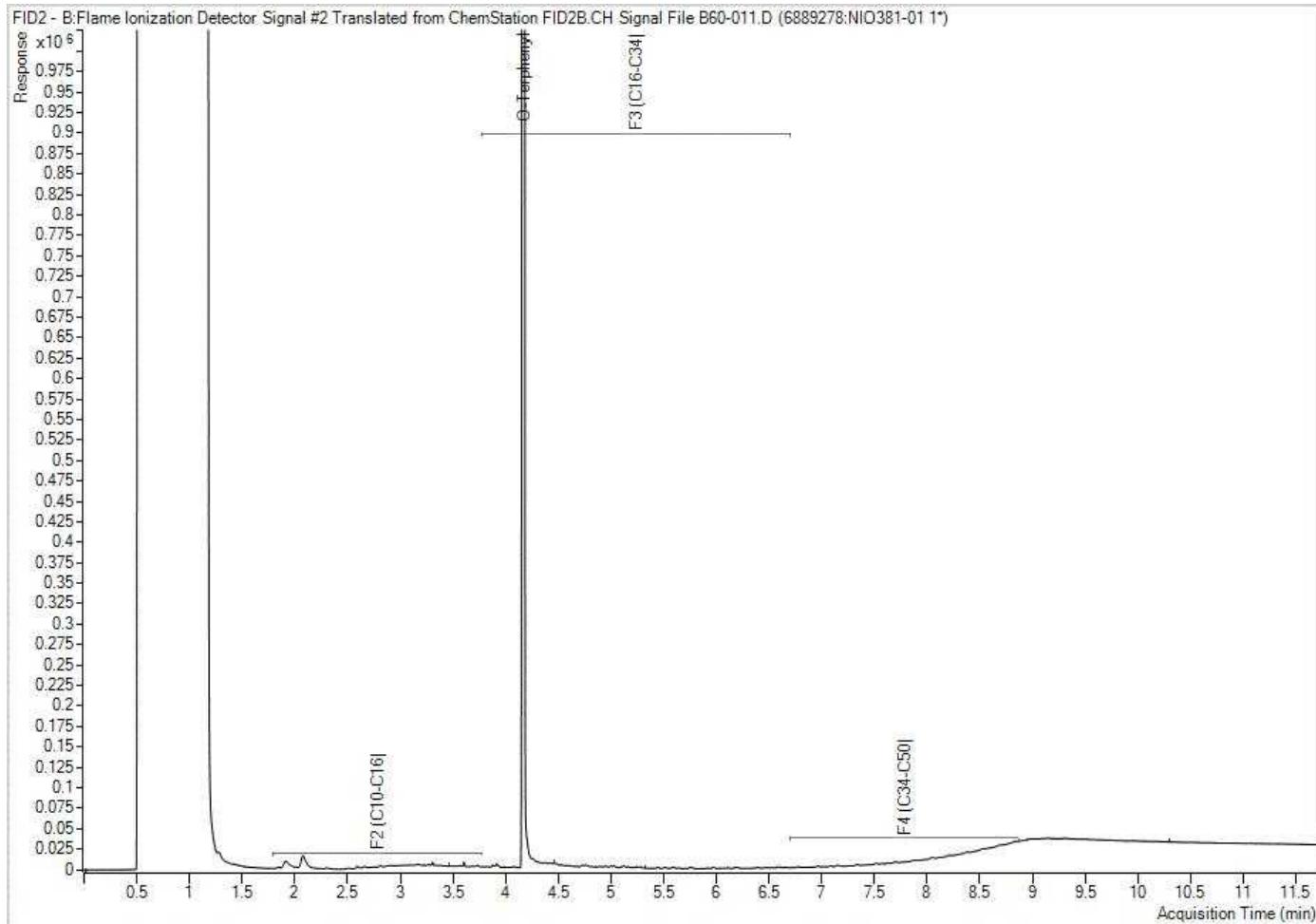
VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Brad Newman, Scientific Service Specialist

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

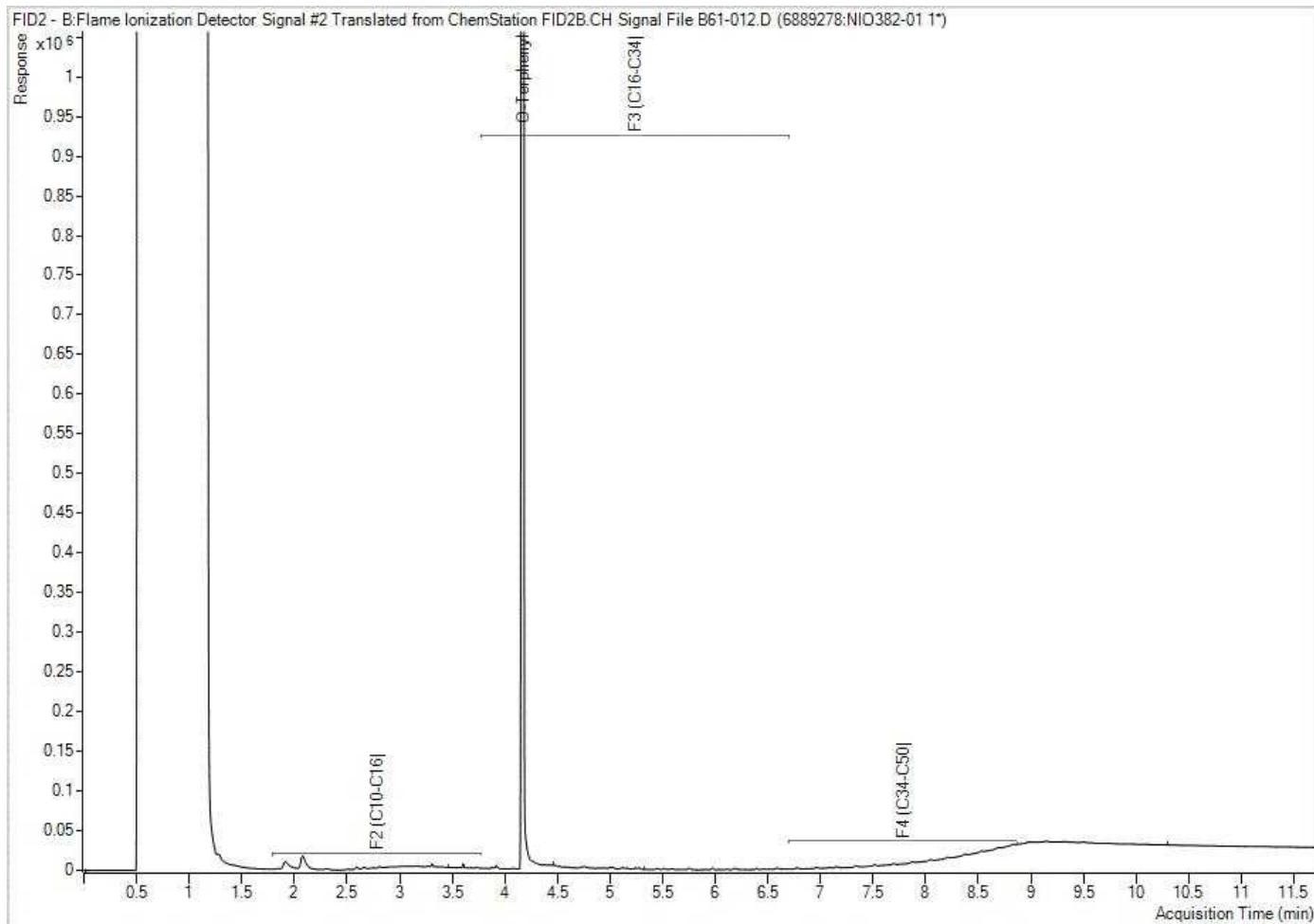


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

BV Labs Job #: COK3609
Report Date: 2020/08/18
BV Labs Sample: NIO382

BLUEFROG ENVIRONMENTAL CONSULTING INC.
Client Project #: 0082-001.01
Client ID: MW102 - 3.05

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

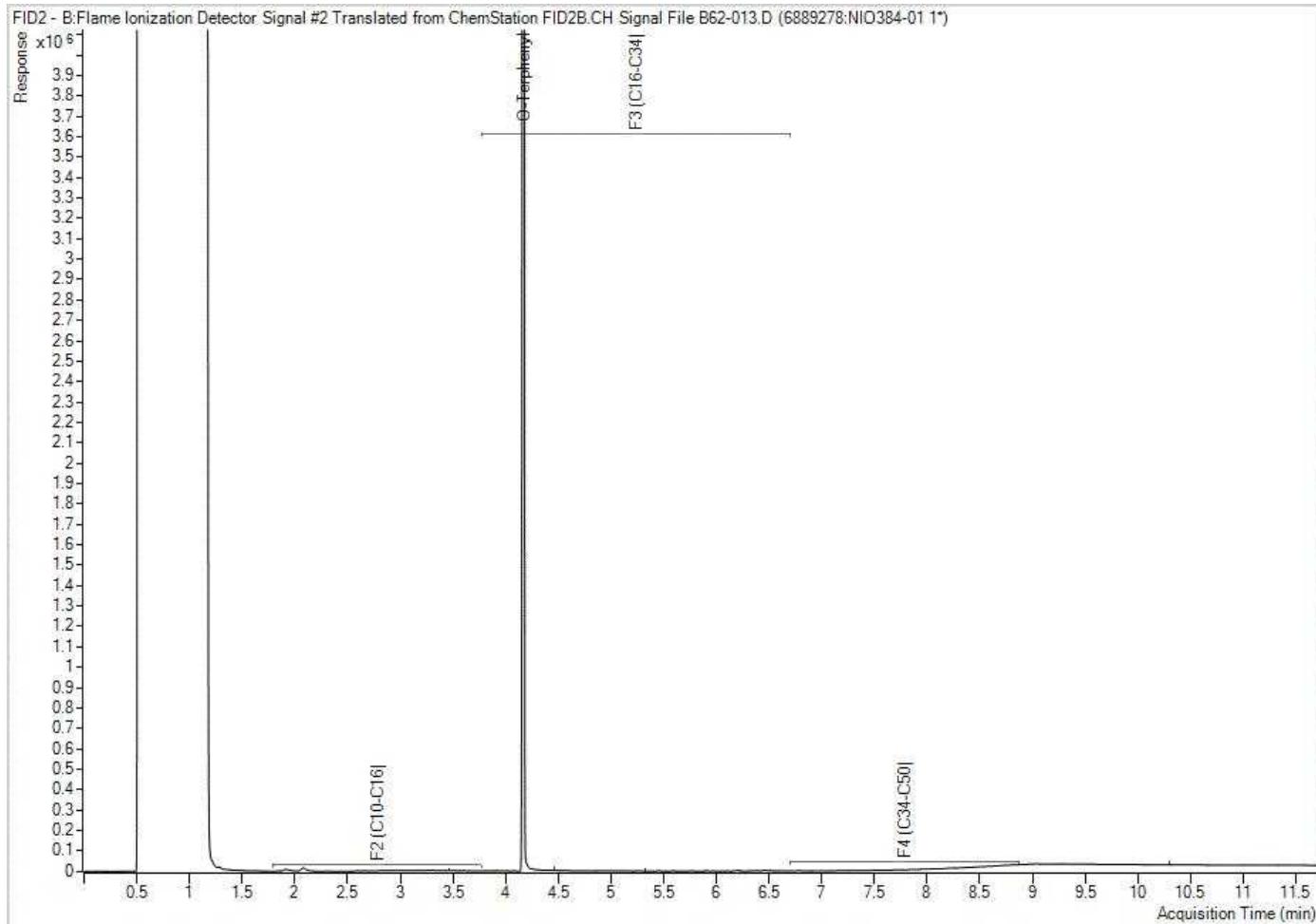


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

BV Labs Job #: COK3609
Report Date: 2020/08/18
BV Labs Sample: NIO384

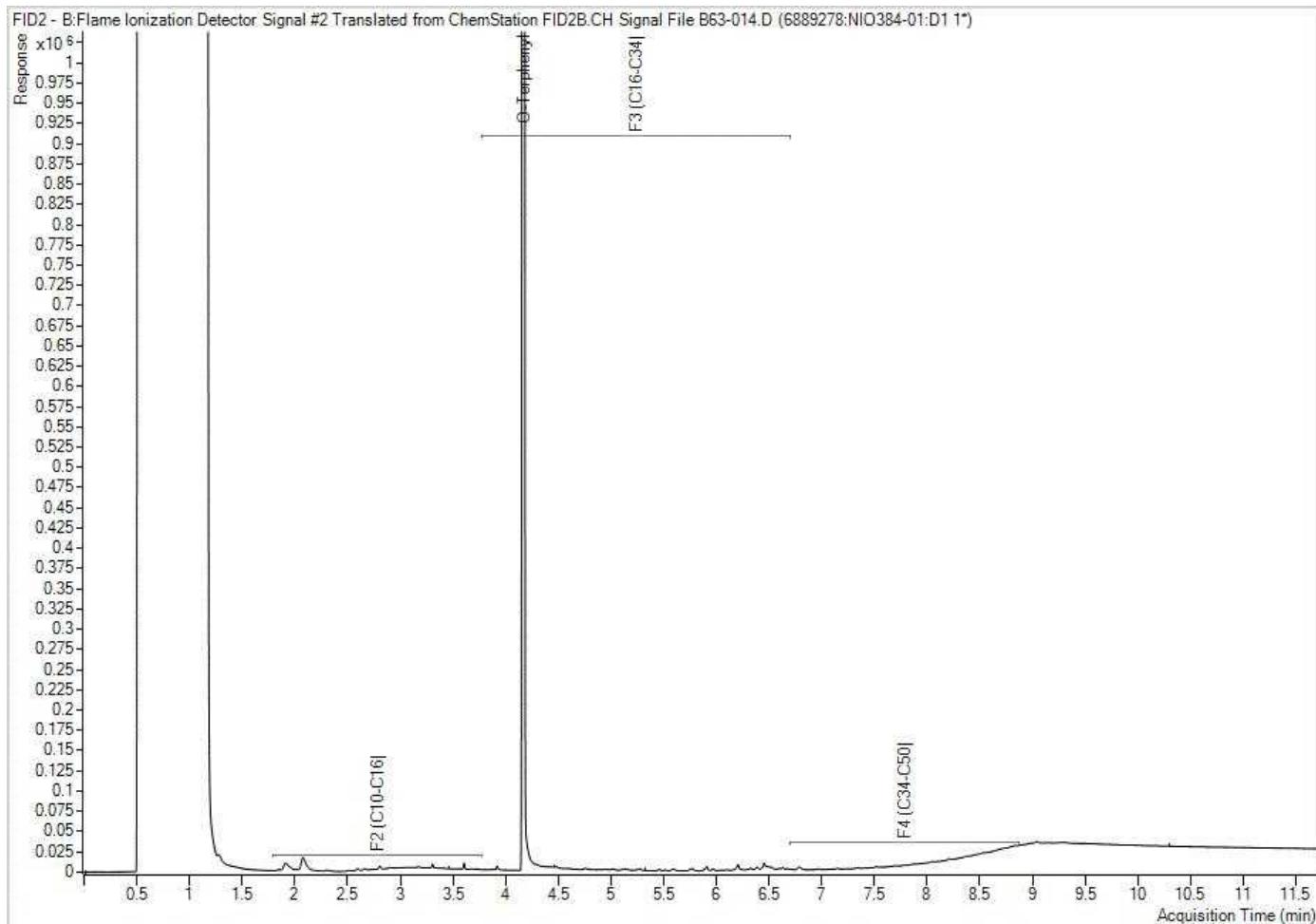
BLUEFROG ENVIRONMENTAL CONSULTING INC.
Client Project #: 0082-001.01
Client ID: BH1 - 0.91

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



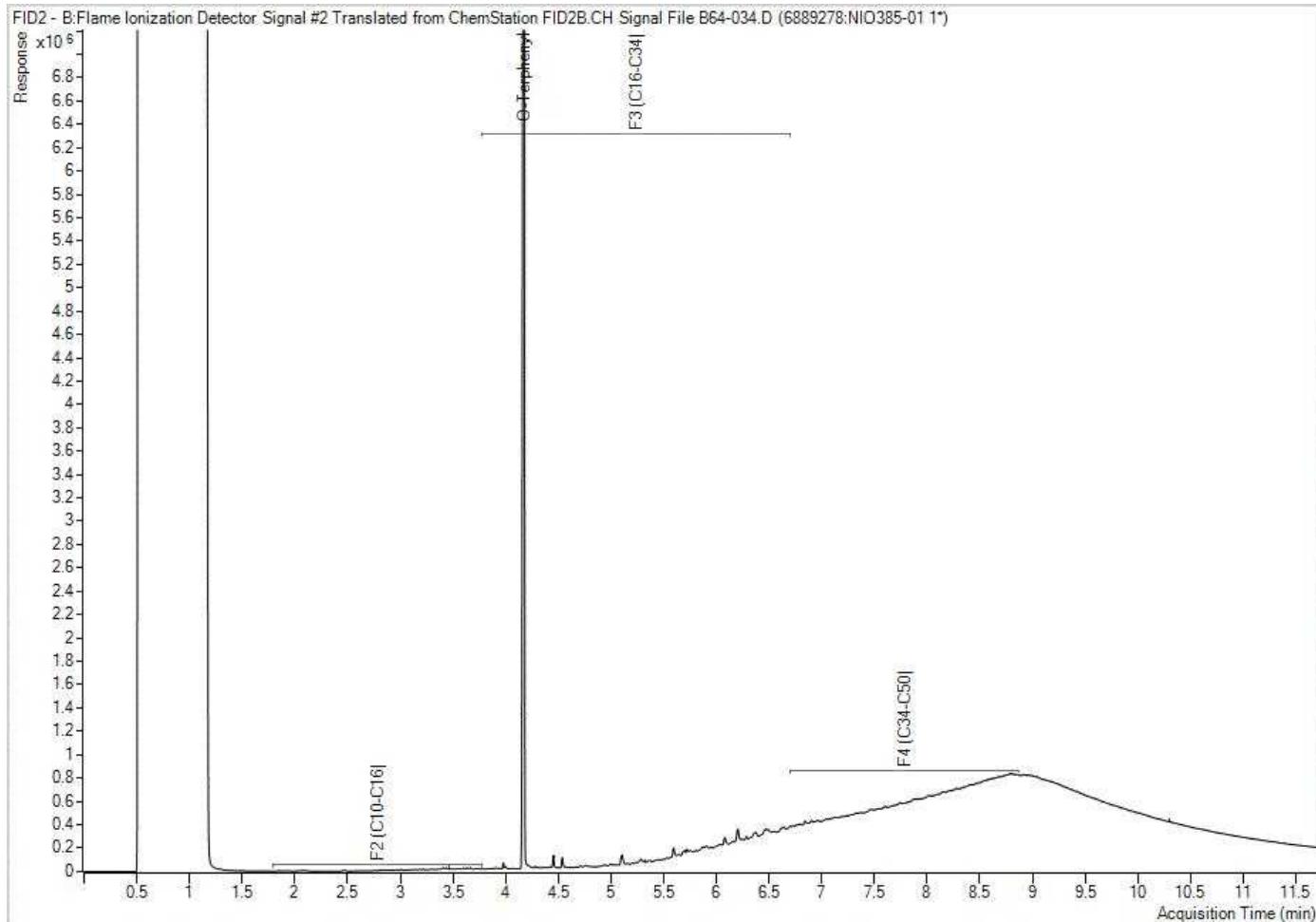
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

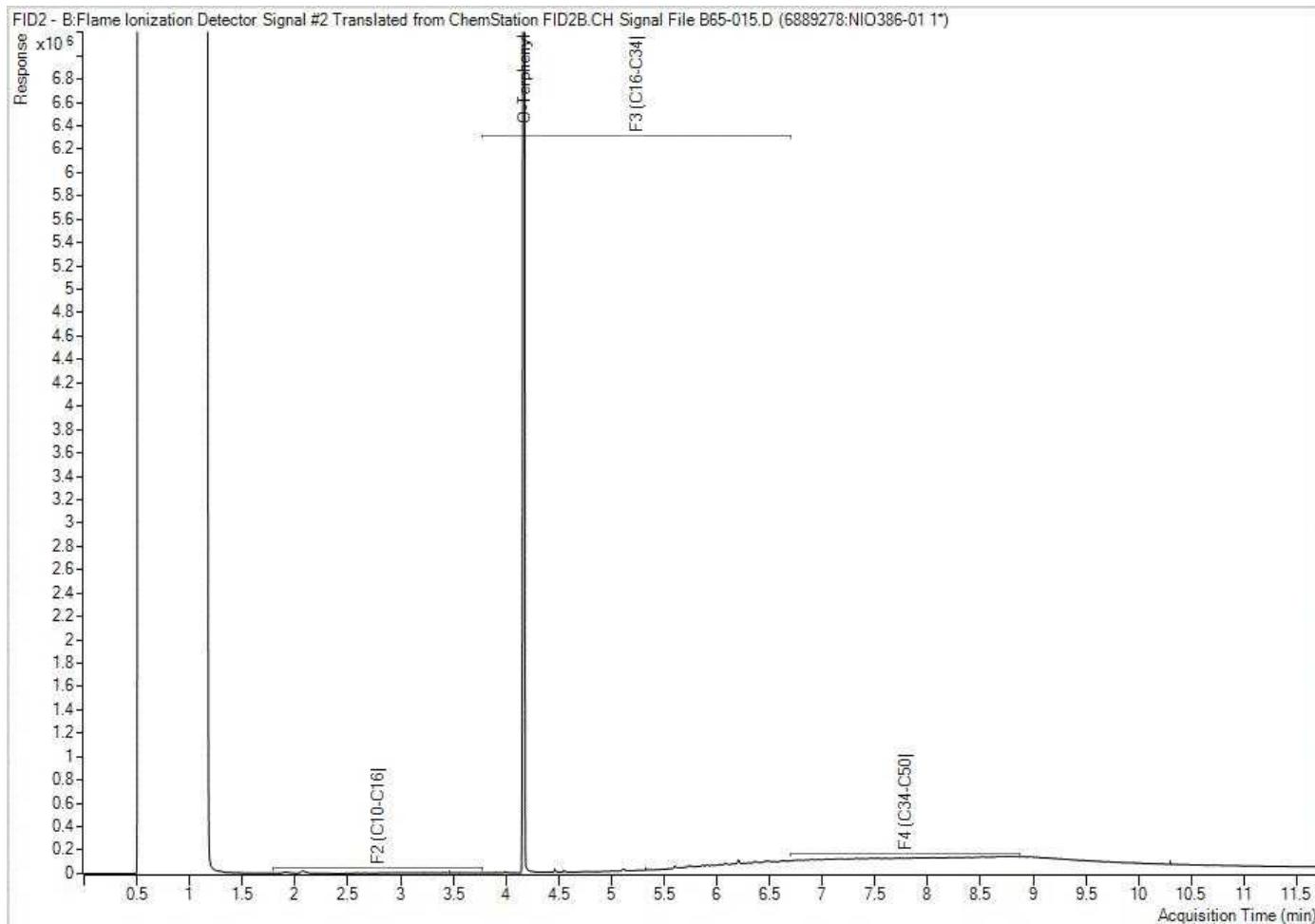


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

BV Labs Job #: COK3609
Report Date: 2020/08/18
BV Labs Sample: NIO386

BLUEFROG ENVIRONMENTAL CONSULTING INC.
Client Project #: 0082-001.01
Client ID: BH3 - 0.61

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

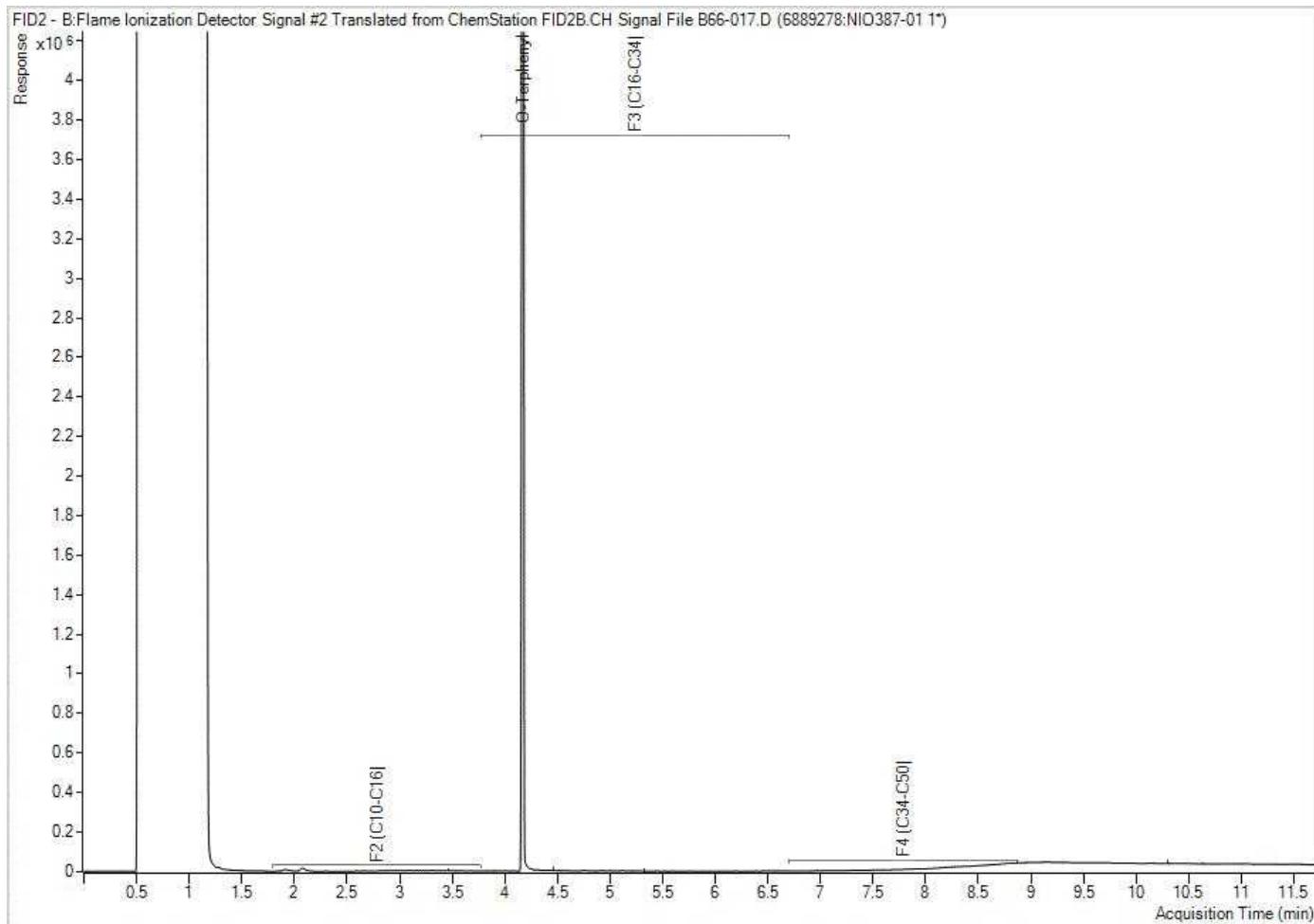


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

BV Labs Job #: COK3609
Report Date: 2020/08/18
BV Labs Sample: NIO387

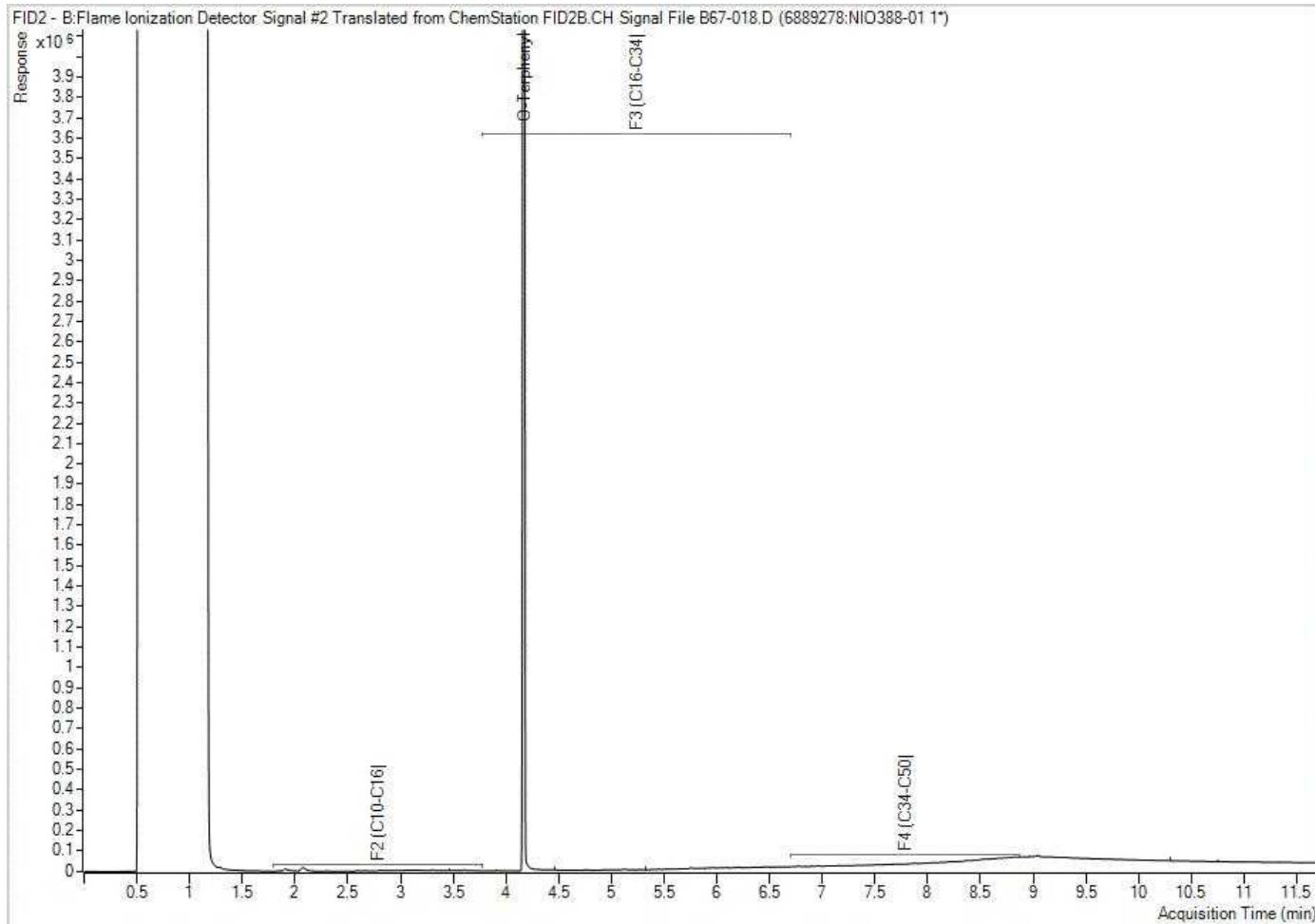
BLUEFROG ENVIRONMENTAL CONSULTING INC.
Client Project #: 0082-001.01
Client ID: BH4 - 5.18

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



BUREAU
VERITAS

Your P.O. #: 0082-001.01
Your Project #: 0082-001.01
Your C.O.C. #: 149859

Attention: Nawshad Mohsin

BLUEFROG ENVIRONMENTAL CONSULTING INC.
SUITE 100-208 WYECROFT ROAD
OAKVILLE, ON
CANADA L6K 3T8

Report Date: 2020/08/18
Report #: R6297244
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C0K3611

Received: 2020/08/11, 16:34

Sample Matrix: Soil
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Cyanide (WAD) in Leachates	1	N/A	2020/08/17	CAM SOP-00457	OMOE 3015 m
Fluoride by ISE in Leachates	1	2020/08/17	2020/08/18	CAM SOP-00449	SM 23 4500-F- C m
Total Metals in TCLP Leachate by ICPMS	1	2020/08/17	2020/08/18	CAM SOP-00447	EPA 6020B m
Nitrate(NO3) + Nitrite(NO2) in Leachate	1	N/A	2020/08/18	CAM SOP-00440	SM 23 4500-NO3I/NO2B
TCLP - % Solids	1	2020/08/16	2020/08/17	CAM SOP-00401	EPA 1311 Update I m
TCLP - Extraction Fluid	1	N/A	2020/08/17	CAM SOP-00401	EPA 1311 Update I m
TCLP - Initial and final pH	1	N/A	2020/08/17	CAM SOP-00401	EPA 1311 Update I m
TCLP Zero Headspace Extraction	1	2020/08/16	2020/08/17	CAM SOP-00430	EPA 1311 m
VOCs in ZHE Leachates	1	2020/08/17	2020/08/17	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.



BUREAU
VERITAS

Your P.O. #: 0082-001.01
Your Project #: 0082-001.01
Your C.O.C. #: 149859

Attention: Nawshad Mohsin

BLUEFROG ENVIRONMENTAL CONSULTING INC.
SUITE 100-208 WYECROFT ROAD
OAKVILLE, ON
CANADA L6K 3T8

Report Date: 2020/08/18
Report #: R6297244
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C0K3611

Received: 2020/08/11, 16:34

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Ema Gitej, Senior Project Manager
Email: Ema.Gitej@bvlabs.com
Phone# (905)817-5829

=====

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total Cover Pages : 2
Page 2 of 12

Bureau Veritas Laboratories 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.



BUREAU
VERITAS

BV Labs Job #: COK3611

Report Date: 2020/08/18

BLUEFROG ENVIRONMENTAL CONSULTING INC.

Client Project #: 0082-001.01

Your P.O. #: 0082-001.01

Sampler Initials: CT

O.REG 558 TCLP INORGANICS PACKAGE (SOIL)

BV Labs ID		NIO392	NIO392		
Sampling Date		2020/08/11 13:20	2020/08/11 13:20		
COC Number		149859	149859		
	UNITS	TCLP	TCLP Lab-Dup	RDL	QC Batch
Inorganics					
Leachable Fluoride (F-)	mg/L	0.28	0.27	0.10	6893177
Leachable WAD Cyanide (Free)	mg/L	<0.010	<0.010	0.010	6893171
Leachable Nitrite (N)	mg/L	<0.10	<0.10	0.10	6893178
Leachable Nitrate (N)	mg/L	<1.0	<1.0	1.0	6893178
Leachable Nitrate + Nitrite (N)	mg/L	<1.0	<1.0	1.0	6893178
Metals					
Leachable Arsenic (As)	mg/L	<0.2	<0.2	0.2	6893088
Leachable Barium (Ba)	mg/L	0.6	0.6	0.2	6893088
Leachable Boron (B)	mg/L	0.1	0.1	0.1	6893088
Leachable Cadmium (Cd)	mg/L	<0.05	<0.05	0.05	6893088
Leachable Chromium (Cr)	mg/L	<0.1	<0.1	0.1	6893088
Leachable Lead (Pb)	mg/L	<0.1	<0.1	0.1	6893088
Leachable Mercury (Hg)	mg/L	<0.001	<0.001	0.001	6893088
Leachable Selenium (Se)	mg/L	<0.1	<0.1	0.1	6893088
Leachable Silver (Ag)	mg/L	<0.01	<0.01	0.01	6893088
Leachable Uranium (U)	mg/L	<0.01	<0.01	0.01	6893088
RDL = Reportable Detection Limit					
QC Batch = Quality Control Batch					
Lab-Dup = Laboratory Initiated Duplicate					



BUREAU
VERITAS

BV Labs Job #: COK3611

Report Date: 2020/08/18

BLUEFROG ENVIRONMENTAL CONSULTING INC.

Client Project #: 0082-001.01

Your P.O. #: 0082-001.01

Sampler Initials: CT

O.REG 558 TCLP LEACHATE PREPARATION (SOIL)

BV Labs ID		NIO392		
Sampling Date		2020/08/11 13:20		
COC Number		149859		
	UNITS	TCLP	RDL	QC Batch
Inorganics				
Final pH	pH	6.12		6892203
Initial pH	pH	8.80		6892203
TCLP - % Solids	%	100	0.2	6892201
TCLP Extraction Fluid	N/A	FLUID 1		6892202
RDL = Reportable Detection Limit				
QC Batch = Quality Control Batch				



BUREAU
VERITAS

BV Labs Job #: COK3611

Report Date: 2020/08/18

BLUEFROG ENVIRONMENTAL CONSULTING INC.

Client Project #: 0082-001.01

Your P.O. #: 0082-001.01

Sampler Initials: CT

O.REG 558 TCLP VOLATILE ORGANICS HS (SOIL)

BV Labs ID		NIO392		
Sampling Date		2020/08/11 13:20		
COC Number		149859		
		UNITS	TCLP	RDL
Charge/Prep Analysis				
Amount Extracted (Wet Weight) (g)	N/A	25	N/A	6892297
Volatile Organics				
Leachable Benzene	mg/L	<0.020	0.020	6892514
Leachable Carbon Tetrachloride	mg/L	<0.020	0.020	6892514
Leachable Chlorobenzene	mg/L	<0.020	0.020	6892514
Leachable Chloroform	mg/L	<0.020	0.020	6892514
Leachable 1,2-Dichlorobenzene	mg/L	<0.050	0.050	6892514
Leachable 1,4-Dichlorobenzene	mg/L	<0.050	0.050	6892514
Leachable 1,2-Dichloroethane	mg/L	<0.050	0.050	6892514
Leachable 1,1-Dichloroethylene	mg/L	<0.020	0.020	6892514
Leachable Methylene Chloride(Dichloromethane)	mg/L	<0.20	0.20	6892514
Leachable Methyl Ethyl Ketone (2-Butanone)	mg/L	<1.0	1.0	6892514
Leachable Tetrachloroethylene	mg/L	<0.020	0.020	6892514
Leachable Trichloroethylene	mg/L	<0.020	0.020	6892514
Leachable Vinyl Chloride	mg/L	<0.020	0.020	6892514
Surrogate Recovery (%)				
Leachable 4-Bromofluorobenzene	%	93		6892514
Leachable D4-1,2-Dichloroethane	%	107		6892514
Leachable D8-Toluene	%	87		6892514
RDL = Reportable Detection Limit				
QC Batch = Quality Control Batch				
N/A = Not Applicable				



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VERITAS

BV Labs Job #: COK3611

Report Date: 2020/08/18

BLUEFROG ENVIRONMENTAL CONSULTING INC.

Client Project #: 0082-001.01

Your P.O. #: 0082-001.01

Sampler Initials: CT

TEST SUMMARY

BV Labs ID: NIO392
Sample ID: TCLP
Matrix: Soil

Collected: 2020/08/11
Shipped:
Received: 2020/08/11

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Cyanide (WAD) in Leachates	SKAL/CN	6893171	N/A	2020/08/17	Louise Harding
Fluoride by ISE in Leachates	ISE	6893177	2020/08/17	2020/08/18	Surinder Rai
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	6893088	2020/08/17	2020/08/18	Arefa Dabhad
Nitrate(NO3) + Nitrite(NO2) in Leachate	LACH	6893178	N/A	2020/08/18	Chandra Nandlal
TCLP - % Solids	BAL	6892201	2020/08/16	2020/08/17	Fozia Tabasum
TCLP - Extraction Fluid		6892202	N/A	2020/08/17	Fozia Tabasum
TCLP - Initial and final pH	PH	6892203	N/A	2020/08/17	Fozia Tabasum
TCLP Zero Headspace Extraction		6892297	2020/08/16	2020/08/17	Fozia Tabasum
VOCs in ZHE Leachates	GC/MS	6892514	2020/08/17	2020/08/17	Blair Gannon

BV Labs ID: NIO392 Dup
Sample ID: TCLP
Matrix: Soil

Collected: 2020/08/11
Shipped:
Received: 2020/08/11

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Cyanide (WAD) in Leachates	SKAL/CN	6893171	N/A	2020/08/17	Louise Harding
Fluoride by ISE in Leachates	ISE	6893177	2020/08/17	2020/08/18	Surinder Rai
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	6893088	2020/08/17	2020/08/18	Arefa Dabhad
Nitrate(NO3) + Nitrite(NO2) in Leachate	LACH	6893178	N/A	2020/08/18	Chandra Nandlal



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VERITAS

BV Labs Job #: COK3611

Report Date: 2020/08/18

BLUEFROG ENVIRONMENTAL CONSULTING INC.

Client Project #: 0082-001.01

Your P.O. #: 0082-001.01

Sampler Initials: CT

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	4.3°C
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Results relate only to the items tested.



BUREAU
VERITAS

BV Labs Job #: COK3611

Report Date: 2020/08/18

BLUEFROG ENVIRONMENTAL CONSULTING INC.

Client Project #: 0082-001.01

Your P.O. #: 0082-001.01

Sampler Initials: CT

QUALITY ASSURANCE REPORT

QA/QC	Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6892514	BG1		Matrix Spike	Leachable 4-Bromofluorobenzene	2020/08/17	109	%	70 - 130	
				Leachable D4-1,2-Dichloroethane	2020/08/17	96	%	70 - 130	
				Leachable D8-Toluene	2020/08/17	103	%	70 - 130	
				Leachable Benzene	2020/08/17	96	%	70 - 130	
				Leachable Carbon Tetrachloride	2020/08/17	96	%	70 - 130	
				Leachable Chlorobenzene	2020/08/17	95	%	70 - 130	
				Leachable Chloroform	2020/08/17	92	%	70 - 130	
				Leachable 1,2-Dichlorobenzene	2020/08/17	96	%	70 - 130	
				Leachable 1,4-Dichlorobenzene	2020/08/17	99	%	70 - 130	
				Leachable 1,2-Dichloroethane	2020/08/17	109	%	70 - 130	
				Leachable 1,1-Dichloroethylene	2020/08/17	102	%	70 - 130	
				Leachable Methylene Chloride(Dichloromethan	2020/08/17	110	%	70 - 130	
				Leachable Methyl Ethyl Ketone (2-Butanone)	2020/08/17	107	%	60 - 140	
				Leachable Tetrachloroethylene	2020/08/17	104	%	70 - 130	
				Leachable Trichloroethylene	2020/08/17	106	%	70 - 130	
				Leachable Vinyl Chloride	2020/08/17	123	%	70 - 130	
6892514	BG1		Spiked Blank	Leachable 4-Bromofluorobenzene	2020/08/17	111	%	70 - 130	
				Leachable D4-1,2-Dichloroethane	2020/08/17	95	%	70 - 130	
				Leachable D8-Toluene	2020/08/17	104	%	70 - 130	
				Leachable Benzene	2020/08/17	95	%	70 - 130	
				Leachable Carbon Tetrachloride	2020/08/17	93	%	70 - 130	
				Leachable Chlorobenzene	2020/08/17	95	%	70 - 130	
				Leachable Chloroform	2020/08/17	89	%	70 - 130	
				Leachable 1,2-Dichlorobenzene	2020/08/17	96	%	70 - 130	
				Leachable 1,4-Dichlorobenzene	2020/08/17	100	%	70 - 130	
				Leachable 1,2-Dichloroethane	2020/08/17	108	%	70 - 130	
				Leachable 1,1-Dichloroethylene	2020/08/17	99	%	70 - 130	
				Leachable Methylene Chloride(Dichloromethan	2020/08/17	108	%	70 - 130	
				Leachable Methyl Ethyl Ketone (2-Butanone)	2020/08/17	113	%	60 - 140	
				Leachable Tetrachloroethylene	2020/08/17	103	%	70 - 130	
				Leachable Trichloroethylene	2020/08/17	104	%	70 - 130	
				Leachable Vinyl Chloride	2020/08/17	121	%	70 - 130	
6892514	BG1		Method Blank	Leachable 4-Bromofluorobenzene	2020/08/17	94	%	70 - 130	
				Leachable D4-1,2-Dichloroethane	2020/08/17	102	%	70 - 130	
				Leachable D8-Toluene	2020/08/17	88	%	70 - 130	
				Leachable Benzene	2020/08/17	<0.020		mg/L	
				Leachable Carbon Tetrachloride	2020/08/17	<0.020		mg/L	
				Leachable Chlorobenzene	2020/08/17	<0.020		mg/L	
				Leachable Chloroform	2020/08/17	<0.020		mg/L	
				Leachable 1,2-Dichlorobenzene	2020/08/17	<0.050		mg/L	
				Leachable 1,4-Dichlorobenzene	2020/08/17	<0.050		mg/L	
				Leachable 1,2-Dichloroethane	2020/08/17	<0.050		mg/L	
				Leachable 1,1-Dichloroethylene	2020/08/17	<0.020		mg/L	
				Leachable Methylene Chloride(Dichloromethan	2020/08/17	<0.20		mg/L	
				Leachable Methyl Ethyl Ketone (2-Butanone)	2020/08/17	<1.0		mg/L	
				Leachable Tetrachloroethylene	2020/08/17	<0.020		mg/L	
				Leachable Trichloroethylene	2020/08/17	<0.020		mg/L	
				Leachable Vinyl Chloride	2020/08/17	<0.020		mg/L	
6892514	BG1		RPD	Leachable Benzene	2020/08/17	NC	%	30	
				Leachable Carbon Tetrachloride	2020/08/17	NC	%	30	
				Leachable Chlorobenzene	2020/08/17	NC	%	30	

BUREAU
VERITAS

BV Labs Job #: COK3611

Report Date: 2020/08/18

BLUEFROG ENVIRONMENTAL CONSULTING INC.

Client Project #: 0082-001.01

Your P.O. #: 0082-001.01

Sampler Initials: CT

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC	Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
				Leachable Chloroform	2020/08/17	NC		%	30
				Leachable 1,2-Dichlorobenzene	2020/08/17	NC		%	30
				Leachable 1,4-Dichlorobenzene	2020/08/17	NC		%	30
				Leachable 1,2-Dichloroethane	2020/08/17	NC		%	30
				Leachable 1,1-Dichloroethylene	2020/08/17	NC		%	30
				Leachable Methylene Chloride(Dichloromethan	2020/08/17	NC		%	30
				Leachable Methyl Ethyl Ketone (2-Butanone)	2020/08/17	NC		%	30
				Leachable Tetrachloroethylene	2020/08/17	NC		%	30
				Leachable Trichloroethylene	2020/08/17	NC		%	30
				Leachable Vinyl Chloride	2020/08/17	NC		%	30
6893088	ADA	Matrix Spike [NIO392-01]		Leachable Arsenic (As)	2020/08/18	102		%	80 - 120
				Leachable Barium (Ba)	2020/08/18	NC		%	80 - 120
				Leachable Boron (B)	2020/08/18	100		%	80 - 120
				Leachable Cadmium (Cd)	2020/08/18	102		%	80 - 120
				Leachable Chromium (Cr)	2020/08/18	101		%	80 - 120
				Leachable Lead (Pb)	2020/08/18	96		%	80 - 120
				Leachable Mercury (Hg)	2020/08/18	103		%	80 - 120
				Leachable Selenium (Se)	2020/08/18	100		%	80 - 120
				Leachable Silver (Ag)	2020/08/18	97		%	80 - 120
				Leachable Uranium (U)	2020/08/18	98		%	80 - 120
6893088	ADA	Leachate Blank		Leachable Arsenic (As)	2020/08/18	<0.2		mg/L	
				Leachable Barium (Ba)	2020/08/18	<0.2		mg/L	
				Leachable Boron (B)	2020/08/18	<0.1		mg/L	
				Leachable Cadmium (Cd)	2020/08/18	<0.05		mg/L	
				Leachable Chromium (Cr)	2020/08/18	<0.1		mg/L	
				Leachable Lead (Pb)	2020/08/18	<0.1		mg/L	
				Leachable Mercury (Hg)	2020/08/18	<0.001		mg/L	
				Leachable Selenium (Se)	2020/08/18	<0.1		mg/L	
				Leachable Silver (Ag)	2020/08/18	<0.01		mg/L	
				Leachable Uranium (U)	2020/08/18	<0.01		mg/L	
6893088	ADA	Spiked Blank		Leachable Arsenic (As)	2020/08/18	97		%	80 - 120
				Leachable Barium (Ba)	2020/08/18	101		%	80 - 120
				Leachable Boron (B)	2020/08/18	106		%	80 - 120
				Leachable Cadmium (Cd)	2020/08/18	99		%	80 - 120
				Leachable Chromium (Cr)	2020/08/18	96		%	80 - 120
				Leachable Lead (Pb)	2020/08/18	95		%	80 - 120
				Leachable Mercury (Hg)	2020/08/18	100		%	80 - 120
				Leachable Selenium (Se)	2020/08/18	98		%	80 - 120
				Leachable Silver (Ag)	2020/08/18	97		%	80 - 120
				Leachable Uranium (U)	2020/08/18	95		%	80 - 120
6893088	ADA	Method Blank		Leachable Arsenic (As)	2020/08/18	<0.2		mg/L	
				Leachable Barium (Ba)	2020/08/18	<0.2		mg/L	
				Leachable Boron (B)	2020/08/18	<0.1		mg/L	
				Leachable Cadmium (Cd)	2020/08/18	<0.05		mg/L	
				Leachable Chromium (Cr)	2020/08/18	<0.1		mg/L	
				Leachable Lead (Pb)	2020/08/18	<0.1		mg/L	
				Leachable Mercury (Hg)	2020/08/18	<0.001		mg/L	
				Leachable Selenium (Se)	2020/08/18	<0.1		mg/L	
				Leachable Silver (Ag)	2020/08/18	<0.01		mg/L	
				Leachable Uranium (U)	2020/08/18	<0.01		mg/L	
6893088	ADA	RPD [NIO392-01]		Leachable Arsenic (As)	2020/08/18	NC		%	35

BUREAU
VERITAS

BV Labs Job #: COK3611

Report Date: 2020/08/18

BLUEFROG ENVIRONMENTAL CONSULTING INC.

Client Project #: 0082-001.01

Your P.O. #: 0082-001.01

Sampler Initials: CT

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Leachable Barium (Ba)	2020/08/18	1.6		%	35
			Leachable Boron (B)	2020/08/18	1.1		%	35
			Leachable Cadmium (Cd)	2020/08/18	NC		%	35
			Leachable Chromium (Cr)	2020/08/18	NC		%	35
			Leachable Lead (Pb)	2020/08/18	NC		%	35
			Leachable Mercury (Hg)	2020/08/18	NC		%	35
			Leachable Selenium (Se)	2020/08/18	NC		%	35
			Leachable Silver (Ag)	2020/08/18	NC		%	35
			Leachable Uranium (U)	2020/08/18	NC		%	35
6893171	LHA	Matrix Spike [NIO392-01]	Leachable WAD Cyanide (Free)	2020/08/17		92	%	80 - 120
6893171	LHA	Leachate Blank	Leachable WAD Cyanide (Free)	2020/08/17	<0.010		mg/L	
6893171	LHA	Spiked Blank	Leachable WAD Cyanide (Free)	2020/08/17		95	%	80 - 120
6893171	LHA	Method Blank	Leachable WAD Cyanide (Free)	2020/08/17	<0.0020		mg/L	
6893171	LHA	RPD [NIO392-01]	Leachable WAD Cyanide (Free)	2020/08/17	NC		%	20
6893177	SAU	Matrix Spike [NIO392-01]	Leachable Fluoride (F-)	2020/08/18		115	%	80 - 120
6893177	SAU	Leachate Blank	Leachable Fluoride (F-)	2020/08/18	<0.10		mg/L	
6893177	SAU	Spiked Blank	Leachable Fluoride (F-)	2020/08/18		104	%	80 - 120
6893177	SAU	Method Blank	Leachable Fluoride (F-)	2020/08/18	<0.10		mg/L	
6893177	SAU	RPD [NIO392-01]	Leachable Fluoride (F-)	2020/08/18	6.2		%	25
6893178	C_N	Matrix Spike [NIO392-01]	Leachable Nitrite (N)	2020/08/18		115	%	80 - 120
6893178	C_N		Leachable Nitrate (N)	2020/08/18		105	%	80 - 120
6893178	C_N		Leachable Nitrate + Nitrite (N)	2020/08/18		107	%	80 - 120
6893178	C_N	Leachate Blank	Leachable Nitrite (N)	2020/08/18	<0.10		mg/L	
6893178	C_N		Leachable Nitrate (N)	2020/08/18	<1.0		mg/L	
6893178	C_N		Leachable Nitrate + Nitrite (N)	2020/08/18	<1.0		mg/L	
6893178	C_N	Spiked Blank	Leachable Nitrite (N)	2020/08/18		108	%	80 - 120
6893178	C_N		Leachable Nitrate (N)	2020/08/18		103	%	80 - 120
6893178	C_N		Leachable Nitrate + Nitrite (N)	2020/08/18		104	%	80 - 120
6893178	C_N	Method Blank	Leachable Nitrite (N)	2020/08/18	<0.10		mg/L	
6893178	C_N		Leachable Nitrate (N)	2020/08/18	<1.0		mg/L	
6893178	C_N		Leachable Nitrate + Nitrite (N)	2020/08/18	<1.0		mg/L	
6893178	C_N	RPD [NIO392-01]	Leachable Nitrite (N)	2020/08/18	NC		%	25
6893178	C_N		Leachable Nitrate (N)	2020/08/18	NC		%	25
6893178	C_N		Leachable Nitrate + Nitrite (N)	2020/08/18	NC		%	25

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Leachate Blank: A blank matrix containing all reagents used in the leaching procedure. Used to determine any process contamination.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).



BUREAU
VERITAS

BV Labs Job #: COK3611

Report Date: 2020/08/18

BLUEFROG ENVIRONMENTAL CONSULTING INC.

Client Project #: 0082-001.01

Your P.O. #: 0082-001.01

Sampler Initials: CT

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Anastassia Hamanov, Scientific Specialist

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



BUREAU
VERITAS

Your P.O. #: 0082-001.01
Your Project #: 0082-001.01
Your C.O.C. #: 788095-01-01

Attention: Nawshad Mohsin

BLUEFROG ENVIRONMENTAL CONSULTING INC.
SUITE 100-208 WYECROFT ROAD
OAKVILLE, ON
CANADA L6K 3T8

Report Date: 2020/08/27
Report #: R6308834
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: COL5351

Received: 2020/08/21, 14:11

Sample Matrix: Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Methylnaphthalene Sum	1	N/A	2020/08/26	CAM SOP-00301	EPA 8270D m
Petroleum Hydro. CCME F1 & BTEX in Water	3	N/A	2020/08/25	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Water (1)	3	2020/08/25	2020/08/26	CAM SOP-00316	CCME PHC-CWS m
PAH Compounds in Water by GC/MS (SIM)	1	2020/08/25	2020/08/26	CAM SOP-00318	EPA 8270D m

Remarks:

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas Laboratories conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.



BUREAU
VERITAS

Your P.O. #: 0082-001.01
Your Project #: 0082-001.01
Your C.O.C. #: 788095-01-01

Attention: Nawshad Mohsin

BLUEFROG ENVIRONMENTAL CONSULTING INC.
SUITE 100-208 WYECROFT ROAD
OAKVILLE, ON
CANADA L6K 3T8

Report Date: 2020/08/27
Report #: R6308834
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: COL5351

Received: 2020/08/21, 14:11

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Ema Gitej, Senior Project Manager
Email: Ema.Gitej@bvlabs.com
Phone# (905)817-5829

=====
This report has been generated and distributed using a secure automated process.

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Total Cover Pages : 2
Page 2 of 15

Bureau Veritas Laboratories 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.



BUREAU
VERITAS

BV Labs Job #: COL5351

Report Date: 2020/08/27

BLUEFROG ENVIRONMENTAL CONSULTING INC.

Client Project #: 0082-001.01

Your P.O. #: 0082-001.01

Sampler Initials: CT

O.REG 153 PAHS (WATER)

BV Labs ID		NKZ289		
Sampling Date		2020/08/21 12:55		
COC Number		788095-01-01		
	UNITS	MW102	RDL	QC Batch

Calculated Parameters

Methylnaphthalene, 2-(1-)	ug/L	<0.071	0.071	6903139
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Polyaromatic Hydrocarbons

Acenaphthene	ug/L	<0.050	0.050	6909354
Acenaphthylene	ug/L	<0.050	0.050	6909354
Anthracene	ug/L	<0.050	0.050	6909354
Benzo(a)anthracene	ug/L	<0.050	0.050	6909354
Benzo(a)pyrene	ug/L	<0.0090	0.0090	6909354
Benzo(b/j)fluoranthene	ug/L	<0.050	0.050	6909354
Benzo(g,h,i)perylene	ug/L	<0.050	0.050	6909354
Benzo(k)fluoranthene	ug/L	<0.050	0.050	6909354
Chrysene	ug/L	<0.050	0.050	6909354
Dibenzo(a,h)anthracene	ug/L	<0.050	0.050	6909354
Fluoranthene	ug/L	<0.050	0.050	6909354
Fluorene	ug/L	<0.050	0.050	6909354
Indeno(1,2,3-cd)pyrene	ug/L	<0.050	0.050	6909354
1-Methylnaphthalene	ug/L	<0.050	0.050	6909354
2-Methylnaphthalene	ug/L	<0.050	0.050	6909354
Naphthalene	ug/L	<0.050	0.050	6909354
Phenanthrene	ug/L	0.040	0.030	6909354
Pyrene	ug/L	<0.050	0.050	6909354

Surrogate Recovery (%)

D10-Anthracene	%	102		6909354
D14-Terphenyl (FS)	%	94		6909354
D8-Acenaphthylene	%	98		6909354

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

BUREAU
VERITAS

BV Labs Job #: COL5351

Report Date: 2020/08/27

BLUEFROG ENVIRONMENTAL CONSULTING INC.

Client Project #: 0082-001.01

Your P.O. #: 0082-001.01

Sampler Initials: CT

O.REG 153 PHCS, BTEX/F1-F4 (WATER)

BV Labs ID		NKZ288		NKZ289		NKZ290		
Sampling Date		2020/08/21 11:55		2020/08/21 12:55		2020/08/21 11:10		
COC Number		788095-01-01		788095-01-01		788095-01-01		
	UNITS	MW101	QC Batch	MW102	QC Batch	MW103	RDL	QC Batch
BTEX & F1 Hydrocarbons								
Benzene	ug/L	<0.20	6907367	<0.20	6907367	<0.20	0.20	6907367
Toluene	ug/L	0.26	6907367	0.20	6907367	<0.20	0.20	6907367
Ethylbenzene	ug/L	<0.20	6907367	<0.20	6907367	<0.20	0.20	6907367
o-Xylene	ug/L	<0.20	6907367	<0.20	6907367	<0.20	0.20	6907367
p+m-Xylene	ug/L	<0.40	6907367	<0.40	6907367	<0.40	0.40	6907367
Total Xylenes	ug/L	<0.40	6907367	<0.40	6907367	<0.40	0.40	6907367
F1 (C6-C10)	ug/L	<25	6907367	<25	6907367	<25	25	6907367
F1 (C6-C10) - BTEX	ug/L	<25	6907367	<25	6907367	<25	25	6907367
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/L	<100	6909636	<100	6909367	<100	100	6909636
F3 (C16-C34 Hydrocarbons)	ug/L	<200	6909636	<200	6909367	<200	200	6909636
F4 (C34-C50 Hydrocarbons)	ug/L	<200	6909636	<200	6909367	<200	200	6909636
Reached Baseline at C50	ug/L	Yes	6909636	Yes	6909367	Yes		6909636
Surrogate Recovery (%)								
1,4-Difluorobenzene	%	103	6907367	102	6907367	102		6907367
4-Bromofluorobenzene	%	96	6907367	97	6907367	96		6907367
D10-o-Xylene	%	96	6907367	96	6907367	95		6907367
D4-1,2-Dichloroethane	%	99	6907367	103	6907367	102		6907367
o-Terphenyl	%	98	6909636	95	6909367	101		6909636
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								



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VERITAS

BV Labs Job #: COL5351

Report Date: 2020/08/27

BLUEFROG ENVIRONMENTAL CONSULTING INC.
Client Project #: 0082-001.01
Your P.O. #: 0082-001.01
Sampler Initials: CT

TEST SUMMARY

BV Labs ID: NKZ288
Sample ID: MW101
Matrix: Water

Collected: 2020/08/21
Shipped:
Received: 2020/08/21

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	6907367	N/A	2020/08/25	Lincoln Ramdahin
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	6909636	2020/08/25	2020/08/26	Prabhjot Gulati

BV Labs ID: NKZ289
Sample ID: MW102
Matrix: Water

Collected: 2020/08/21
Shipped:
Received: 2020/08/21

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6903139	N/A	2020/08/26	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	6907367	N/A	2020/08/25	Lincoln Ramdahin
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	6909367	2020/08/25	2020/08/26	Ksenia Trofimova
PAH Compounds in Water by GC/MS (SIM)	GC/MS	6909354	2020/08/25	2020/08/26	Jett Wu

BV Labs ID: NKZ290
Sample ID: MW103
Matrix: Water

Collected: 2020/08/21
Shipped:
Received: 2020/08/21

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	6907367	N/A	2020/08/25	Lincoln Ramdahin
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	6909636	2020/08/25	2020/08/26	Prabhjot Gulati



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BV Labs Job #: COL5351

Report Date: 2020/08/27

BLUEFROG ENVIRONMENTAL CONSULTING INC.

Client Project #: 0082-001.01

Your P.O. #: 0082-001.01

Sampler Initials: CT

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	24.3°C
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Results relate only to the items tested.

BUREAU
VERITAS

BV Labs Job #: COL5351

Report Date: 2020/08/27

BLUEFROG ENVIRONMENTAL CONSULTING INC.

Client Project #: 0082-001.01

Your P.O. #: 0082-001.01

Sampler Initials: CT

QUALITY ASSURANCE REPORT

QA/QC	Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6907367	LRA	Matrix Spike		1,4-Difluorobenzene	2020/08/25	100	%	70 - 130	
				4-Bromofluorobenzene	2020/08/25	90	%	70 - 130	
				D10-o-Xylene	2020/08/25	97	%	70 - 130	
				D4-1,2-Dichloroethane	2020/08/25	94	%	70 - 130	
				Benzene	2020/08/25	105	%	70 - 130	
				Toluene	2020/08/25	100	%	70 - 130	
				Ethylbenzene	2020/08/25	113	%	70 - 130	
				o-Xylene	2020/08/25	109	%	70 - 130	
				p+m-Xylene	2020/08/25	108	%	70 - 130	
				F1 (C6-C10)	2020/08/25	72	%	70 - 130	
6907367	LRA	Spiked Blank		1,4-Difluorobenzene	2020/08/25	102	%	70 - 130	
				4-Bromofluorobenzene	2020/08/25	96	%	70 - 130	
				D10-o-Xylene	2020/08/25	96	%	70 - 130	
				D4-1,2-Dichloroethane	2020/08/25	96	%	70 - 130	
				Benzene	2020/08/25	108	%	70 - 130	
				Toluene	2020/08/25	102	%	70 - 130	
				Ethylbenzene	2020/08/25	114	%	70 - 130	
				o-Xylene	2020/08/25	108	%	70 - 130	
				p+m-Xylene	2020/08/25	107	%	70 - 130	
				F1 (C6-C10)	2020/08/25	96	%	70 - 130	
6907367	LRA	Method Blank		1,4-Difluorobenzene	2020/08/24	103	%	70 - 130	
				4-Bromofluorobenzene	2020/08/24	96	%	70 - 130	
				D10-o-Xylene	2020/08/24	96	%	70 - 130	
				D4-1,2-Dichloroethane	2020/08/24	100	%	70 - 130	
				Benzene	2020/08/24	<0.20		ug/L	
				Toluene	2020/08/24	<0.20		ug/L	
				Ethylbenzene	2020/08/24	<0.20		ug/L	
				o-Xylene	2020/08/24	<0.20		ug/L	
				p+m-Xylene	2020/08/24	<0.40		ug/L	
				Total Xylenes	2020/08/24	<0.40		ug/L	
				F1 (C6-C10)	2020/08/24	<25		ug/L	
				F1 (C6-C10) - BTEX	2020/08/24	<25		ug/L	
				Benzene	2020/08/25	4.5	%	30	
6907367	LRA	RPD		Toluene	2020/08/25	7.5	%	30	
				Ethylbenzene	2020/08/25	0.76	%	30	
				o-Xylene	2020/08/25	0.35	%	30	
				p+m-Xylene	2020/08/25	4.4	%	30	
				Total Xylenes	2020/08/25	3.4	%	30	
				F1 (C6-C10)	2020/08/25	9.1	%	30	
				F1 (C6-C10) - BTEX	2020/08/25	9.1	%	30	
				Benzene	2020/08/26	102	%	50 - 130	
6909354	JET	Matrix Spike		D14-Terphenyl (FS)	2020/08/26	98	%	50 - 130	
				D8-Acenaphthylene	2020/08/26	97	%	50 - 130	
				Acenaphthene	2020/08/26	110	%	50 - 130	
				Acenaphthylene	2020/08/26	107	%	50 - 130	
				Anthracene	2020/08/26	110	%	50 - 130	
				Benzo(a)anthracene	2020/08/26	113	%	50 - 130	
				Benzo(a)pyrene	2020/08/26	109	%	50 - 130	
				Benzo(b/j)fluoranthene	2020/08/26	111	%	50 - 130	
				Benzo(g,h,i)perylene	2020/08/26	100	%	50 - 130	
				Benzo(k)fluoranthene	2020/08/26	111	%	50 - 130	

BUREAU
VERITAS

BV Labs Job #: COL5351

Report Date: 2020/08/27

BLUEFROG ENVIRONMENTAL CONSULTING INC.

Client Project #: 0082-001.01

Your P.O. #: 0082-001.01

Sampler Initials: CT

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC	Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6909354	JET	Spiked Blank		Chrysene	2020/08/26	115	%	50 - 130	
				Dibenz(a,h)anthracene	2020/08/26	112	%	50 - 130	
				Fluoranthene	2020/08/26	121	%	50 - 130	
				Fluorene	2020/08/26	114	%	50 - 130	
				Indeno(1,2,3-cd)pyrene	2020/08/26	99	%	50 - 130	
				1-Methylnaphthalene	2020/08/26	109	%	50 - 130	
				2-Methylnaphthalene	2020/08/26	110	%	50 - 130	
				Naphthalene	2020/08/26	105	%	50 - 130	
				Phenanthrene	2020/08/26	117	%	50 - 130	
				Pyrene	2020/08/26	120	%	50 - 130	
				D10-Anthracene	2020/08/26	116	%	50 - 130	
				D14-Terphenyl (FS)	2020/08/26	110	%	50 - 130	
				D8-Acenaphthylene	2020/08/26	107	%	50 - 130	
				Acenaphthene	2020/08/26	109	%	50 - 130	
				Acenaphthylene	2020/08/26	105	%	50 - 130	
				Anthracene	2020/08/26	109	%	50 - 130	
				Benzo(a)anthracene	2020/08/26	112	%	50 - 130	
				Benzo(a)pyrene	2020/08/26	110	%	50 - 130	
				Benzo(b/j)fluoranthene	2020/08/26	111	%	50 - 130	
				Benzo(g,h,i)perylene	2020/08/26	102	%	50 - 130	
				Benzo(k)fluoranthene	2020/08/26	108	%	50 - 130	
				Chrysene	2020/08/26	113	%	50 - 130	
				Dibenz(a,h)anthracene	2020/08/26	114	%	50 - 130	
				Fluoranthene	2020/08/26	120	%	50 - 130	
				Fluorene	2020/08/26	113	%	50 - 130	
				Indeno(1,2,3-cd)pyrene	2020/08/26	101	%	50 - 130	
				1-Methylnaphthalene	2020/08/26	105	%	50 - 130	
				2-Methylnaphthalene	2020/08/26	107	%	50 - 130	
				Naphthalene	2020/08/26	100	%	50 - 130	
				Phenanthrene	2020/08/26	116	%	50 - 130	
				Pyrene	2020/08/26	119	%	50 - 130	
6909354	JET	Method Blank		D10-Anthracene	2020/08/26	108	%	50 - 130	
				D14-Terphenyl (FS)	2020/08/26	107	%	50 - 130	
				D8-Acenaphthylene	2020/08/26	95	%	50 - 130	
				Acenaphthene	2020/08/26	<0.050	ug/L		
				Acenaphthylene	2020/08/26	<0.050	ug/L		
				Anthracene	2020/08/26	<0.050	ug/L		
				Benzo(a)anthracene	2020/08/26	<0.050	ug/L		
				Benzo(a)pyrene	2020/08/26	<0.0090	ug/L		
				Benzo(b/j)fluoranthene	2020/08/26	<0.050	ug/L		
				Benzo(g,h,i)perylene	2020/08/26	<0.050	ug/L		
				Benzo(k)fluoranthene	2020/08/26	<0.050	ug/L		
				Chrysene	2020/08/26	<0.050	ug/L		
				Dibenz(a,h)anthracene	2020/08/26	<0.050	ug/L		
				Fluoranthene	2020/08/26	<0.050	ug/L		
				Fluorene	2020/08/26	<0.050	ug/L		
				Indeno(1,2,3-cd)pyrene	2020/08/26	<0.050	ug/L		
				1-Methylnaphthalene	2020/08/26	<0.050	ug/L		
				2-Methylnaphthalene	2020/08/26	<0.050	ug/L		
				Naphthalene	2020/08/26	<0.050	ug/L		
				Phenanthrene	2020/08/26	<0.030	ug/L		



BUREAU
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BV Labs Job #: COL5351

Report Date: 2020/08/27

BLUEFROG ENVIRONMENTAL CONSULTING INC.

Client Project #: 0082-001.01

Your P.O. #: 0082-001.01

Sampler Initials: CT

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6909354	JET	RPD	Pyrene	2020/08/26	<0.050		ug/L	
			Acenaphthene	2020/08/26	NC	%		30
			Acenaphthylene	2020/08/26	NC	%		30
			Anthracene	2020/08/26	NC	%		30
			Benzo(a)anthracene	2020/08/26	NC	%		30
			Benzo(a)pyrene	2020/08/26	NC	%		30
			Benzo(b/j)fluoranthene	2020/08/26	NC	%		30
			Benzo(g,h,i)perylene	2020/08/26	NC	%		30
			Benzo(k)fluoranthene	2020/08/26	NC	%		30
			Chrysene	2020/08/26	NC	%		30
			Dibenzo(a,h)anthracene	2020/08/26	NC	%		30
			Fluoranthene	2020/08/26	NC	%		30
			Fluorene	2020/08/26	NC	%		30
			Indeno(1,2,3-cd)pyrene	2020/08/26	NC	%		30
			1-Methylnaphthalene	2020/08/26	NC	%		30
			2-Methylnaphthalene	2020/08/26	NC	%		30
			Naphthalene	2020/08/26	NC	%		30
			Phenanthrene	2020/08/26	NC	%		30
			Pyrene	2020/08/26	NC	%		30
6909367	KTR	Matrix Spike	o-Terphenyl	2020/08/26	101	%	60 - 130	
			F2 (C10-C16 Hydrocarbons)	2020/08/26	NC	%	50 - 130	
			F3 (C16-C34 Hydrocarbons)	2020/08/26	NC	%	50 - 130	
			F4 (C34-C50 Hydrocarbons)	2020/08/26	93	%	50 - 130	
6909367	KTR	Spiked Blank	o-Terphenyl	2020/08/26	101	%	60 - 130	
			F2 (C10-C16 Hydrocarbons)	2020/08/26	101	%	60 - 130	
			F3 (C16-C34 Hydrocarbons)	2020/08/26	111	%	60 - 130	
			F4 (C34-C50 Hydrocarbons)	2020/08/26	95	%	60 - 130	
6909367	KTR	Method Blank	o-Terphenyl	2020/08/26	97	%	60 - 130	
			F2 (C10-C16 Hydrocarbons)	2020/08/26	<100	ug/L		
			F3 (C16-C34 Hydrocarbons)	2020/08/26	<200	ug/L		
			F4 (C34-C50 Hydrocarbons)	2020/08/26	<200	ug/L		
6909367	KTR	RPD	F2 (C10-C16 Hydrocarbons)	2020/08/26	NC	%		30
			F3 (C16-C34 Hydrocarbons)	2020/08/26	4.5	%		30
			F4 (C34-C50 Hydrocarbons)	2020/08/26	NC	%		30
			o-Terphenyl	2020/08/26	100	%	60 - 130	
6909636	GUL	Matrix Spike	F2 (C10-C16 Hydrocarbons)	2020/08/26	111	%	50 - 130	
			F3 (C16-C34 Hydrocarbons)	2020/08/26	129	%	50 - 130	
			F4 (C34-C50 Hydrocarbons)	2020/08/26	116	%	50 - 130	
			o-Terphenyl	2020/08/26	104	%	60 - 130	
6909636	GUL	Spiked Blank	F2 (C10-C16 Hydrocarbons)	2020/08/26	102	%	60 - 130	
			F3 (C16-C34 Hydrocarbons)	2020/08/26	124	%	60 - 130	
			F4 (C34-C50 Hydrocarbons)	2020/08/26	107	%	60 - 130	
			o-Terphenyl	2020/08/26	98	%	60 - 130	
6909636	GUL	Method Blank	F2 (C10-C16 Hydrocarbons)	2020/08/26	<100	ug/L		
			F3 (C16-C34 Hydrocarbons)	2020/08/26	<200	ug/L		
			F4 (C34-C50 Hydrocarbons)	2020/08/26	<200	ug/L		
			F2 (C10-C16 Hydrocarbons)	2020/08/26	NC	%		30
6909636	GUL	RPD	F3 (C16-C34 Hydrocarbons)	2020/08/26	NC	%		30



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BV Labs Job #: COL5351

Report Date: 2020/08/27

BLUEFROG ENVIRONMENTAL CONSULTING INC.

Client Project #: 0082-001.01

Your P.O. #: 0082-001.01

Sampler Initials: CT

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC	Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
				F4 (C34-C50 Hydrocarbons)	2020/08/26	NC		%	30

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).



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BV Labs Job #: COL5351

Report Date: 2020/08/27

BLUEFROG ENVIRONMENTAL CONSULTING INC.

Client Project #: 0082-001.01

Your P.O. #: 0082-001.01

Sampler Initials: CT

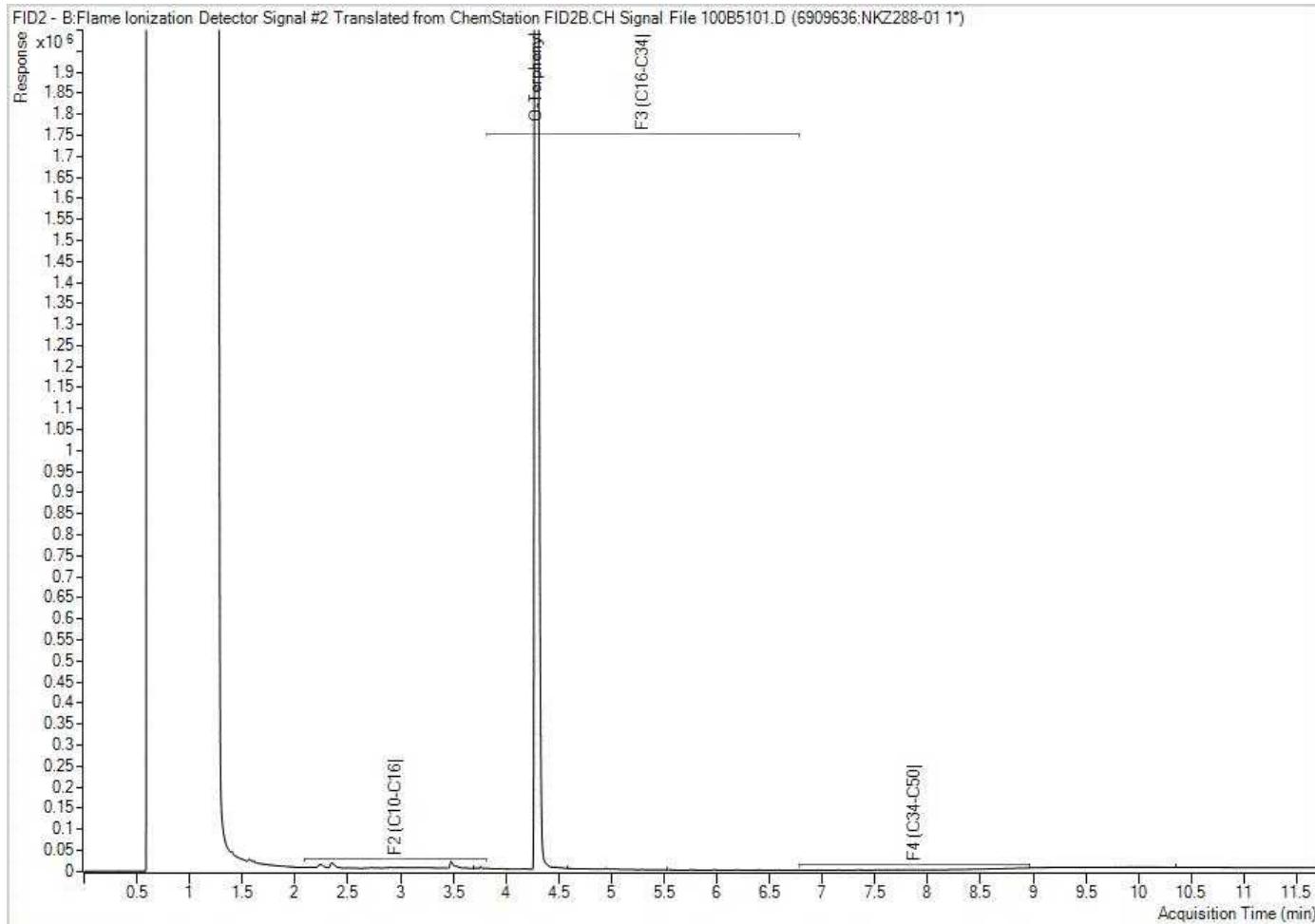
VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Brad Newman, Scientific Service Specialist

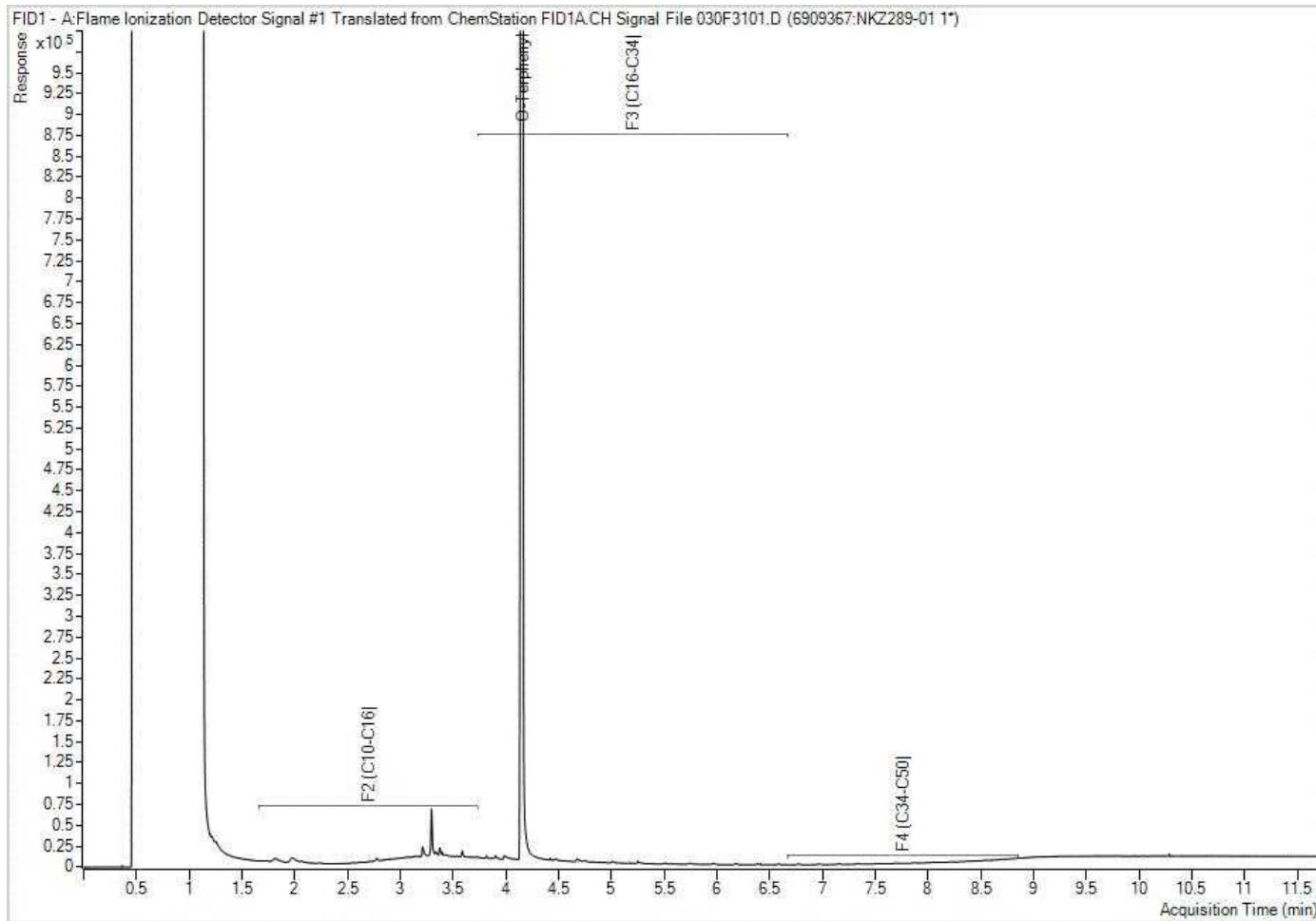
BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram

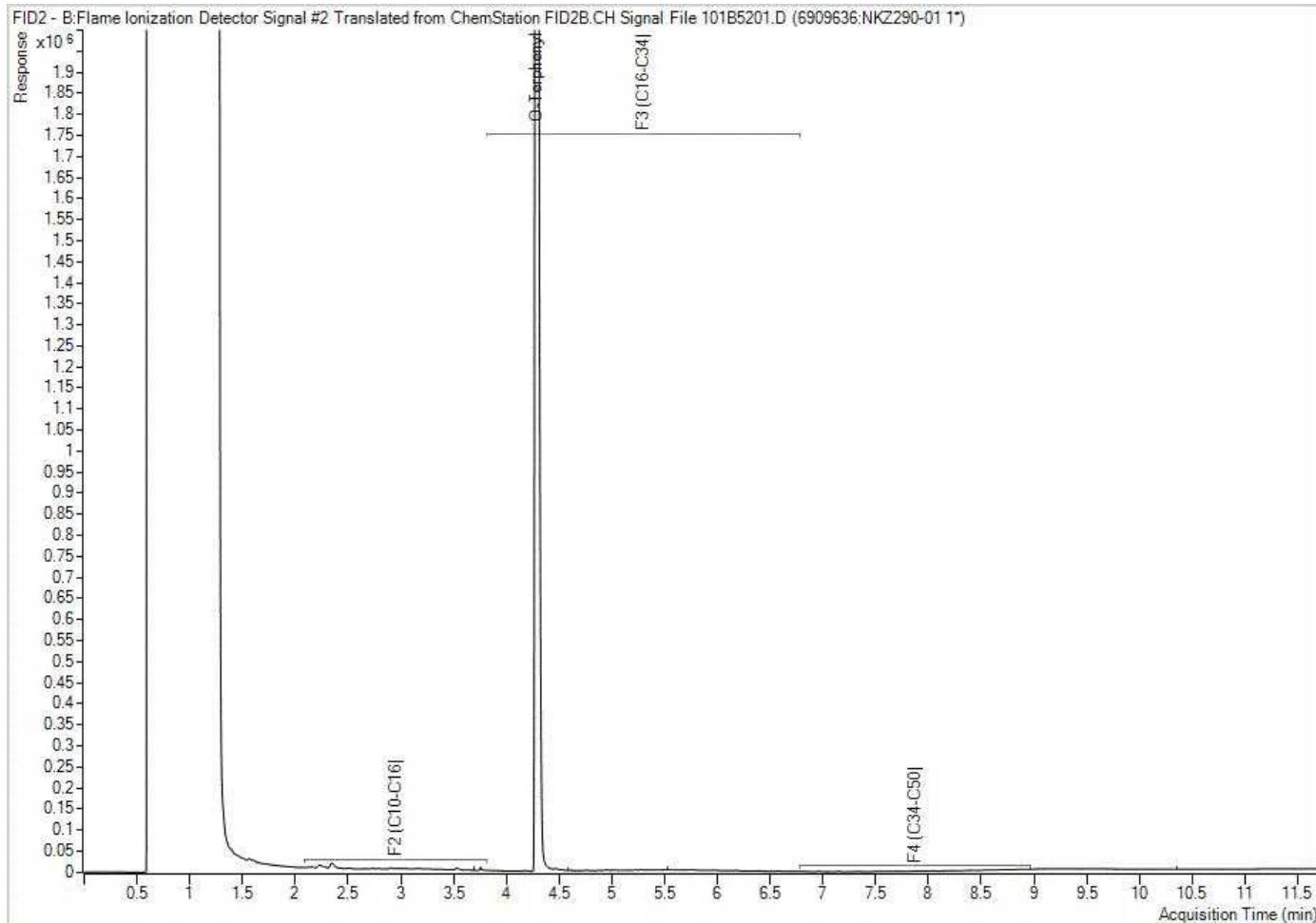


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BV Labs Job #: COL5351
Report Date: 2020/08/27
BV Labs Sample: NKZ290

BLUEFROG ENVIRONMENTAL CONSULTING INC.
Client Project #: 0082-001.01
Client ID: MW103

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.